



**Navajo County 2050:  
Supporting Prosperity and Preservation**

**Existing Conditions**

August 21, 2024



# Navajo County 2050

*Supporting Prosperity and Preservation*



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## OVERVIEW

### *Purpose and Intent*

Navajo County's Comprehensive Plan was first adopted in May 2004, following the adoption of *Growing Smarter* legislation in Arizona, and most recently updated in May 2023. Navajo County's Comprehensive Plan has not seen any major updates since its original adoption, although there have been changes in population and demographics over the past twenty (20) years. The purpose of Existing Conditions Report is to provide a baseline inventory or snapshot-in-time of the existing conditions for Navajo County in 2024, which can be used to inform the *Navajo County 2050 Comprehensive Plan Update* (Update). The intent for the Update stems from Arizona Revised Statutes Title 11, Chapter 6, Article 11-804 and includes the following.

*The comprehensive plan shall be made with the general purpose of guiding and accomplishing a coordinated, adjusted and harmonious development of the area of jurisdiction pursuant to the present and future needs of the County.*

*The comprehensive plan shall be developed so as to conserve the natural resources of the County, to ensure efficient expenditure of public monies, and to promote the health, safety, convenience, and general welfare of the public.*

Though Navajo County does not meet the population threshold in ARS for required elements or topics, the Update will include topics related to land use, transportation, housing, economic growth, water/wastewater resources, public facilities, environment, and open space. Accordingly, this report is organized to address these areas and illustrate pertinent demographics as well as development impacting trends and opportunities for Navajo County.

### *Project Team*

The Project Team (PT) includes staff from the Navajo County Public Works office who will provide technical and institutional expertise and support throughout the Update process. The staff will guide the direction of the Update and supplement the expertise needed to ensure the Update reflects the needs of Navajo County. The PT also includes members of the consultant group, Logan Simpson, Kimley Horn, and Elliot D. Pollack & Company, who will function as an extension of staff throughout the Update.





## HISTORIC & REGIONAL CONTEXT

### Historic Overview

Navajo County holds a rich history dating back thousands of years when the area was inhabited by various Native American tribes, including the Navajo, Hopi, Apache, and Pueblo peoples. These Indigenous communities established their settlements, practiced agriculture, and developed unique cultural traditions. The Hopi Pueblo of Oraibi is one of the oldest continuously inhabited settlements in the United States. On March 21, 1895, Navajo County was established after Apache County was divided vertically in half in the final act of the Territorial Assembly, Navajo County being the western portion. Previously, the first Arizona legislature (1864) established four counties, and in 1879 the boundaries for Apache County were created from the eastern two-fifths of Yavapai County by the Tenth Territorial Legislature. Throughout the late 19th and early 20th centuries, Navajo County experienced rapid growth with the expansion of railroads, the development of mining and logging industries, and the establishment of North America's third largest ranch, the Aztec Land and Cattle Company near Holbrook, the County seat which was founded in 1881. Navajo County has a current population of 107,110 people.

As shown in **Figure 1**, Navajo County is located in northeastern Arizona flanked by Coconino County and Apache County to its east and west and the State of Utah to the north and Gila County and Graham County to the south. Navajo County is Arizona's fourth largest County by area and is mostly made up of reservation land. Nearly two-thirds of Navajo County is Native American Reservation land while the remaining land area is divided by individual and corporate ownership (18%); U.S. Forest Service and U.S. Bureau of Land Management (9%); and the State of Arizona (5.9%). More information on land ownership can be found in the Land Use section of this report. All of Navajo County is designated an Enterprise Zone, a geographic area of government-granted special status to encourage economic growth.

Today, although shifting, Navajo County's principal industries are tourism, coal mining, manufacturing, timber production, and ranching. Towns like Holbrook, Winslow, and Show Low emerged as important trading centers and transportation hubs. In the modern era, Navajo County continues to be characterized by its diverse population and stunning natural landscapes, including parts of the Painted Desert, Petrified Forest National Park, high desert prairies and steep-walled canyons beneath the snowcapped peaks and deep forest of the White Mountains and Mogollon Rim. It remains an important center for Native American culture and heritage, with the Navajo Nation exerting considerable influence over the region's economic and cultural life.

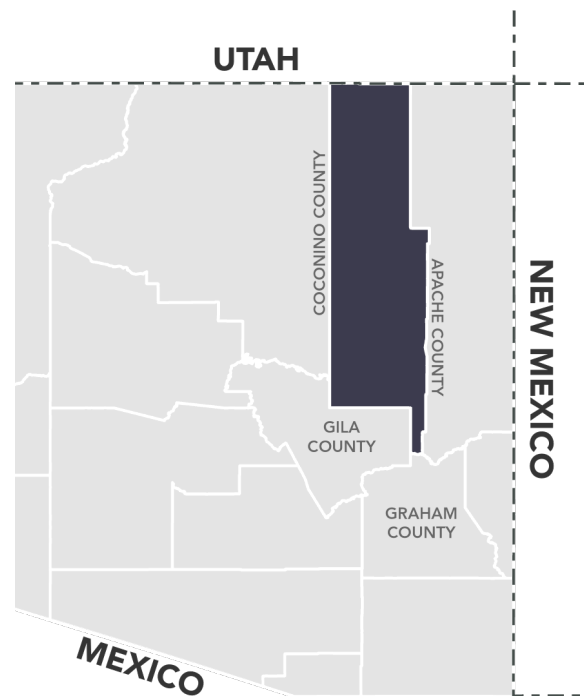


Figure 1 - Navajo County within State of Arizona.



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## Regional Context

Navajo County is approximately 9,952 sq. miles in size and is located in northeast Arizona. The County makes up approximately 8.7% of the State and is ranked ninth in total population among Arizona counties. The County boundary was developed over a series of County subdivisions starting with forty percent of eastern Yavapai County in 1879. Apache County was subsequently split in half, minting the new Navajo County in 1895, resulting in the boundaries depicted in **Figure 2**.

Figure 2: Navajo County Base Map





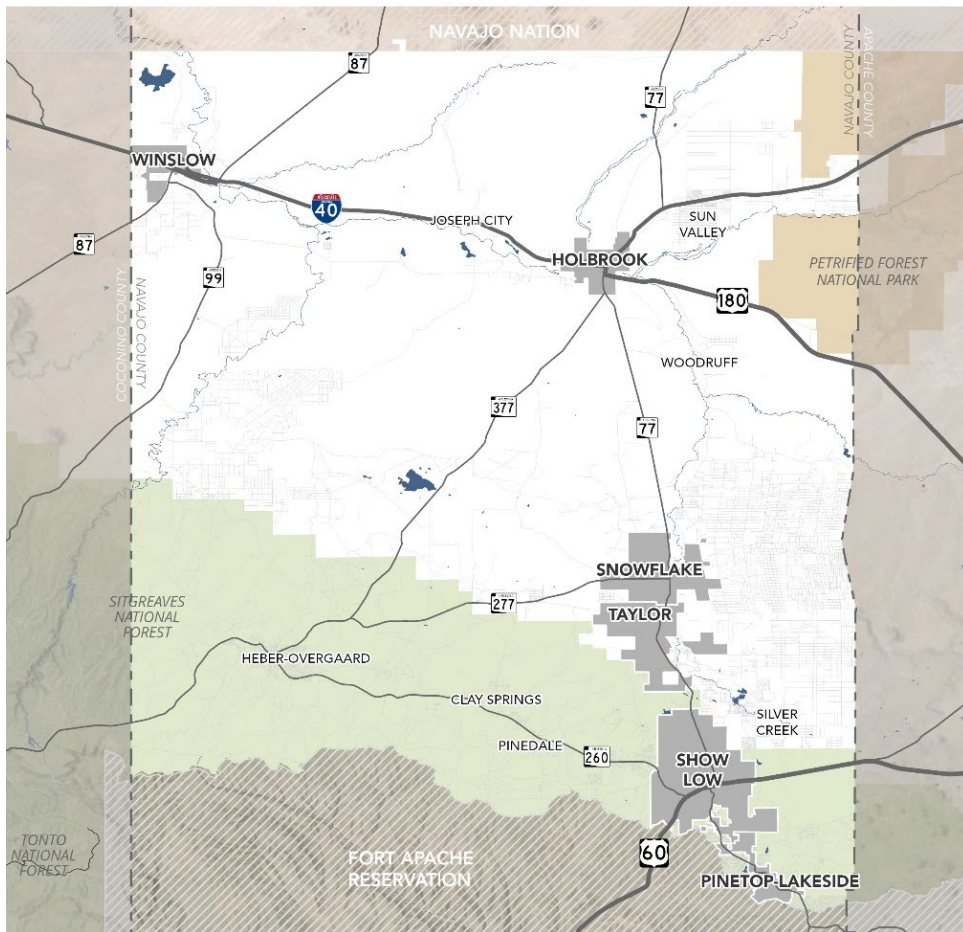
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## Focus Area

The governance of the comprehensive plan applies only to unincorporated areas of Navajo County (approximately 3,309 sq. miles), and therefore does not apply to incorporated areas (174 sq. miles) or to land within the sovereign nation boundaries of Hopi, Navajo, or White Mountain Apache reservations (6,469 square miles). Thoughtful coordination will require accounting for both the plans of tribal nations and municipalities and then, integrating them at the interface of those boundaries as relevant. The maps within this report will represent both the base map to show connectivity of features such as roadways and open space as well as the smaller inset or focus area. The boundary of the focus area (3,483 sq. miles) is along the Interstate 40, with upper bounds between the Navajo Nation and Holbrook, and the Sitgreaves National Forest and Fort Apache Reservation on the South. **Figure 3** depicts the boundaries for the Navajo County focus area.

Figure 3: Navajo County Focus Area Map



### NAVAJO COUNTY FOCUS AREA



- Navajo County Boundary
- Cities and Towns within Navajo County Jurisdiction
- Native Lands
- Petrified Forest National Park
- National Forest
- Rivers and Streams
- Water Bodies









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## BASELINE DEMOGRAPHICS

This section covers historic, current, and total population; population by age, race, and ethnicity; educational attainment; and household income. The chart below illustrates a quick snapshot of the Baseline Demographics section.

*By the Numbers, Source: 2022 ACS 5-Year Estimates*

 <p><b>107,110</b> Total population</p>	 <p><b>10.75 People</b> Per sq. mi.</p>	 <p><b>38.7 Years</b> Median age</p>
 <p><b>\$ 50,335</b> Median household income</p>	 <p><b>\$ 22,826</b> Per capita income</p>	 <p><b>24.8%</b> Population below the poverty line</p>

### Historic, Current, and Projected Population

Navajo County’s current population is 107,110 according to the latest estimates from American Community Survey 5-year data (2022). The population has remained virtually unchanged since the 2010 Census. The 2020 Census, however, had data collection and integrity issues due to realities of the COVID-19 pandemic and reported a population of 110,271. Since the pandemic started in 2020, the population has decreased 2.9%.

The Arizona Office of Economic Opportunity (OEO) estimates three scenarios of projected populations for Navajo County for each year between 2022 and 2060. In addition to the “medium” projection series OEO deems as the most likely scenario to bare, they also provide a low and a high series. In all three scenarios, total population projections are expected to decline by four percent in 2030 and 2040, and by seven percent in 2050 and 2060. Declining population translates to reduced demand and slows economic growth. Growth, however, may continue within incorporated cities and towns. See the section on Economic Growth for more information.

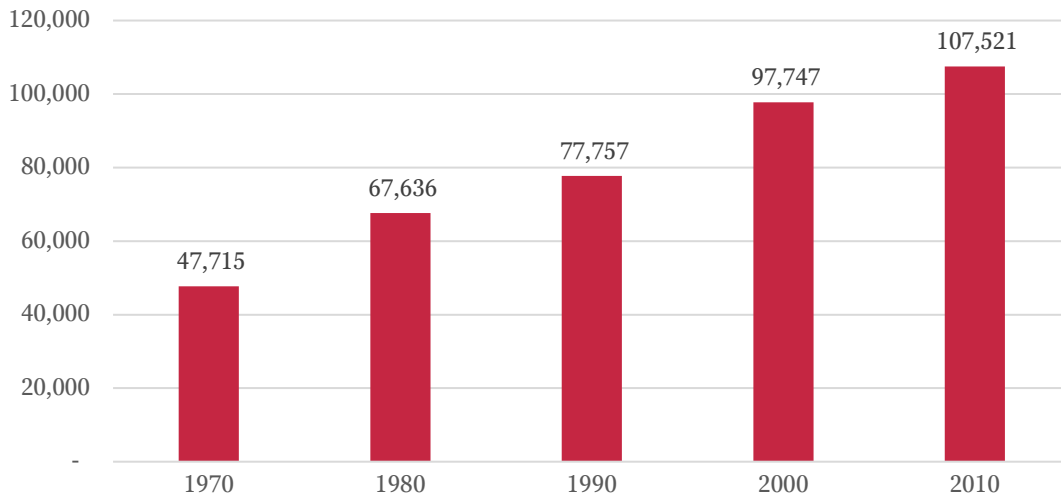
Historically, the population of the County has shown consistent growth starting in 1970. The largest historical growth period was from 1970 to 1980 when the population grew by twenty-nine percent in that decade, followed by a twenty percent growth period between 1990 and 2000.



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## Historic Population, US Census



## 40-Year Population Projections, Arizona Office of Economic Opportunity



Source: Headwaters Economics' Economic Profile System, March 14, 2024

A notable difference between each of the projected population scenarios is the rate of decline. The “low” scenario represents an accelerated decline over the next forty-year period. Due to the record of building permit activity, using the “high” population forecast would be suitable for planning activities.

### Population by Age

The largest single age group in the County is people aged nineteen and younger. Those aged between fifty-five and sixty-nine are the next largest age cohort (21,243 persons). The distribution of other ages is fairly even until those aged over seventy years old, where populations tail off.





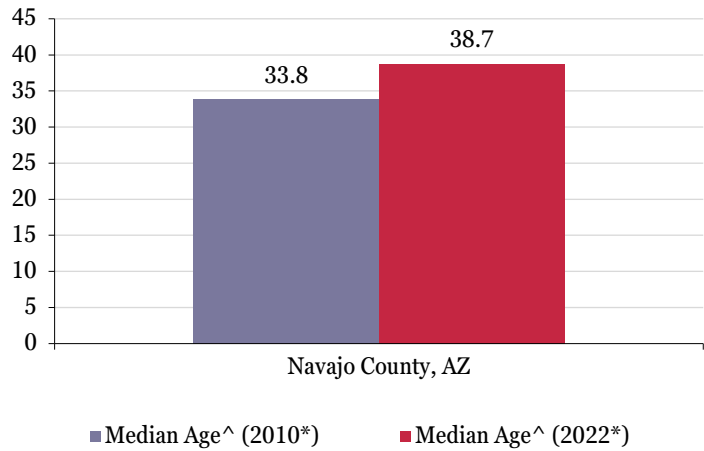
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## Median Age

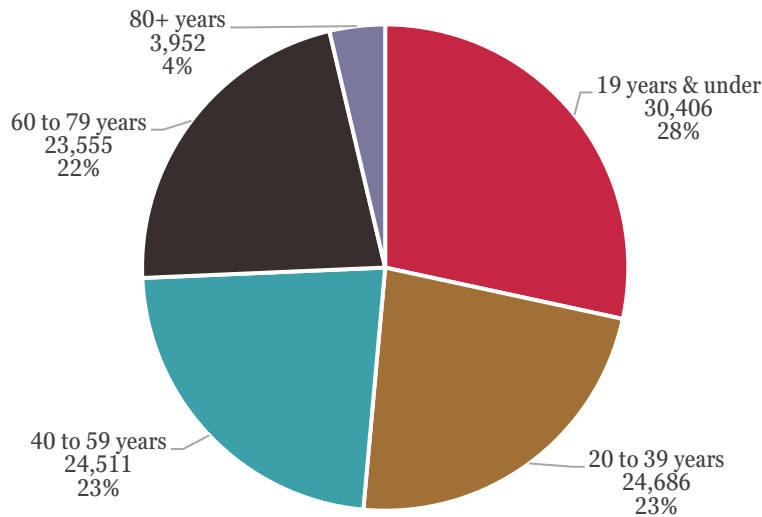
Median Age divides a population into two numerically equal groups, one half of the population are younger than this age and the other half are older. The Median Age in the County is currently 38.7 years old (2022), which has risen from 33.8 years old twelve years ago (2010). The percentage of people earning a retirement income in the County is slightly larger than those with retirement earnings as a whole in the State, and therefore may be a contributing factor to the increase in median age. Also, the largest generation, the Baby Boom generation, will all be sixty-five years old by the year 2030. The implications of this increase in median age are discussed further in the Development Impacting Trends & Opportunities section.

### Median Age, 2010 & 2022



Source: Headwaters Economics' Economic Profile System, March 14, 2024. ACS 5-year estimates used. 2022 represents average characteristics from 2018-2022; 2010 represents 2006-2010.

### Age Distribution, 2022



Source: Headwaters Economics' Economic Profile System, March 14, 2024



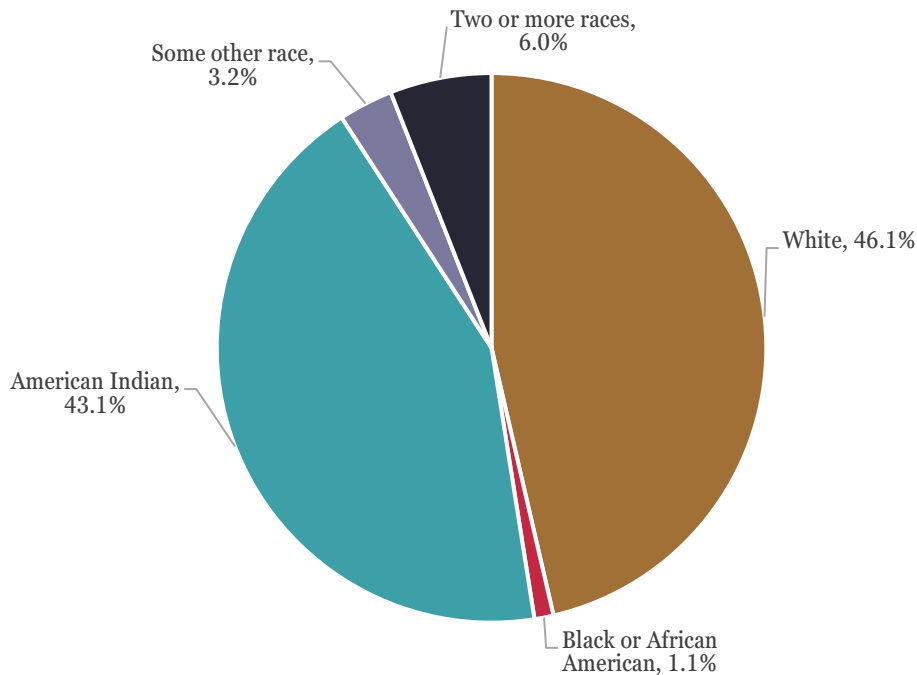
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## *Population by Race and Ethnicity*

The two largest populations by race in the County are White at 46% and Native American at 43%. There is little representation by other races in the County. The pie chart depicting percentage shares of race excludes representation for Asian and Native Hawaiian & Other Pacific Islander populations. These populations were not reported here because the counts that are so low the data is unreliable. Together, Asian and Native Hawaiian & Other Pacific Islander populations represent 0.5% of the population of the County, at most.

Population by Race, Percent of Total, Arizona, 2022



*Source: Headwaters Economics' Economic Profile System, March 14, 2024. ACS 5-year estimates used. 2022 represents average characteristics from 2018-2022.*

The Hispanic population in Navajo County is 11.9 percent. One of the fastest growing segments of the U.S. population, Hispanics made up 17.3 percent of the U.S. population in 2016, and by 2060, the Census Bureau predicts that 28.6 percent of the population in the U.S. will be Hispanic. The Census Bureau notes that data on ethnic groups are important for putting into effect several federal statutes, to meet or otherwise reflect the needs, values, and attitudes that vary by ethnic group. Federal statutes include the Voting Rights Act, which enforces bilingual election rules, and the Civil Rights Act, created for monitoring and enforcing equal employment opportunities. Local governments also rely on data for ethnicity to run programs and meet legislative requirements like identifying medical service gaps under the Public Health Act and evaluating whether financial institutions are meeting the credit needs of minority populations under the Community Reinvestment Act.

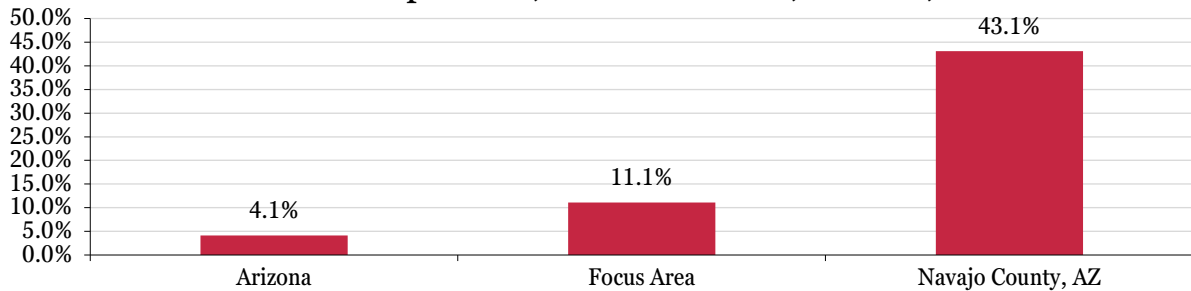


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The people of the Navajo, Apache, Hopi, and other native tribes have unique ties to the land in the County dating back centuries as well as legal rights to certain activities, such as hunting, fishing, and plant-gathering. Plans and policies may have disproportionately high and adverse effects on tribes, and it is helpful to know whether native peoples live in a particular area. With large portions of land within the County boundary being reservation land, a very large portion of the population in Navajo County is Native American, a number dwarfing relative comparisons to the State. As the Navajo Nation, Hopi Reservation, and Fort Apache Reservation lands intersect the County, so do Federal/State route highways and roads, bringing people and business into both the unincorporated areas and to cities and towns where they take advantage of services provided by each of these jurisdictions.

Native American Population, Percent of Total, Arizona, 2022



Sources: *Headwaters Economics' Economic Profile System, March 14, 2024, ACS 5-year estimates used. 2022 represents average characteristics from 2018-2022; and ESRI Business Analyst, 2017-2021 Estimates used for focus area.*

The largest population by tribe in the County is Navajo, followed by Apache, and then Hopi.

Native Populations	
Navajo County, AZ	
Total Population, 2022*	107,110
Total Native American	46,154
American Indian Tribes; Specified	44,788
Apache	10,017
Hopi	5,957
Navajo	27,432

Source: *Headwaters Economics' Economic Profile System, March 14, 2024, ACS 5-year estimates used. 2022 represents average characteristics from 2018-2022*

## Educational attainment

Educational attainment is a significant factor and metric correlated to economic success, poverty, workforce growth, income, and resiliency in economic downturns. Policies and plans may disproportionately impact populations of differing education levels. Understanding these metrics is relevant to conducting outreach as well as funding.

Educational attainment refers to the highest level of education that an individual has completed. For populations over the age of twenty-five, attainment is broken down into eleven levels from populations with no schooling up to those with a graduate degree. Navajo County and the focus area are close in distributions of educational attainment. The focus area has a higher population with higher post-secondary educational

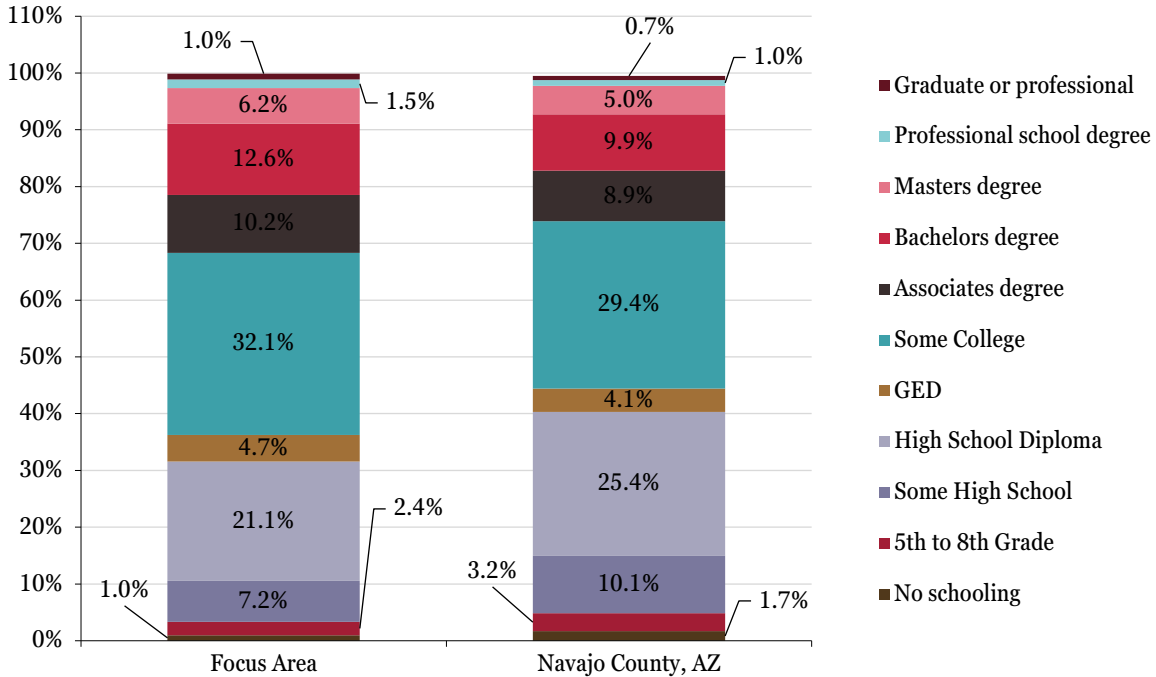


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attainment, while Navajo County as a whole has a higher population with a lower level of educational attainment from no schooling to a high school diploma.

## Educational Attainment, 2021



Source: ESRI Business Analyst, 2017-2021

### Household Income

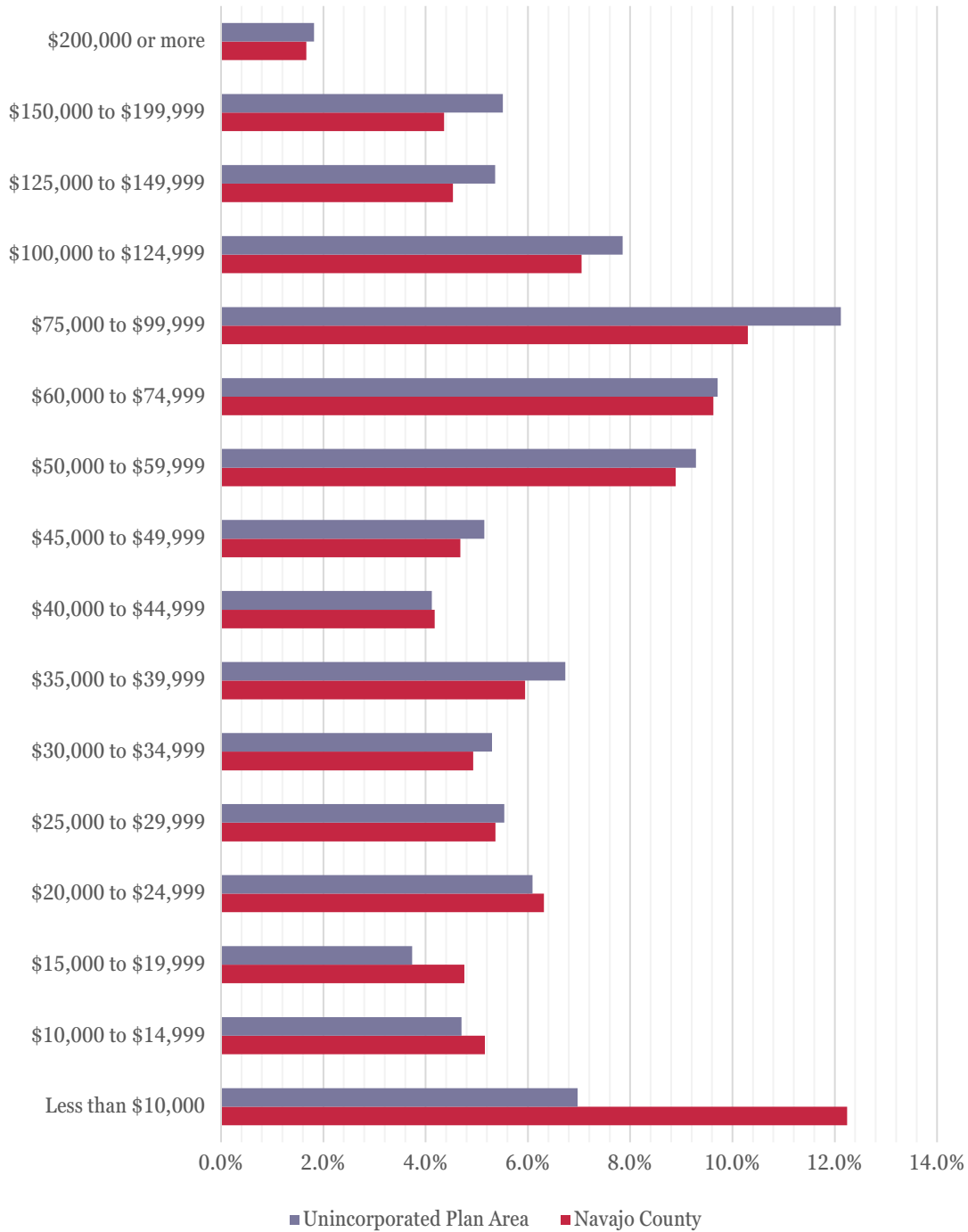
The Median Household Income in Navajo County is \$50,335. Incomes between the County and the non-tribal focus area follow similar distributions in incomes; 51.7% (focus areas) and 46.5% (Navajo County) earn over \$50,000, and the remaining income groups earn less than \$50,000. There is a conspicuous disparity between the focus area and Navajo County in each area’s largest single income group; while the focus area’s largest single largest income group, at 12.1% of the focus area population, earns \$75,000–\$90,000, the single largest income group in Navajo County, 12.2% of the population, earn less than \$10,000, which is nearly double the population of the focus area earning less than \$10,000 (seven percent). Finally, the focus area leads in higher earning income groups while the entire County area leads in the lower earning income groups. This points to the economic disparity between tribal and non-tribal areas within the County boundary.



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## Household Income



Source: ESRI Business Analyst, 2017-2021



## LAND USE

This section provides an overview of the existing land uses and development patterns, existing land ownership, existing zoning, existing aggregate resources, and existing future land use designations. Land uses are described in terms of the various activities undertaken on public and private parcels, including agriculture, residential, industrial, mining, and recreational. Land uses are distributed throughout the County following a pattern defined by natural limitations and market forces. The intent of this inventory and analysis is to assist in creating a future land use section of the general plan that is practical and realistic but also suitable and harmonious to the environment. Each topic in this section has been inventoried within the boundaries of the focus area shown in **Figure 3**.

### Existing Land Uses and Development Patterns

Mapping the existing land uses for Navajo County has been limited by data availability and data quality. The Navajo County Assessor keeps records on over sixty-thousand County parcels whereas the County GIS data on parcels contains records for over eighty-thousand parcels; therefore, there is a data gap of over twenty thousand parcels between the two sources. The total count of all parcels is 86,108 and the total land area of parcels in the contiguous non-tribal portion of the County is 3,255.7 square miles. As shown in the following table, most of the land area in the County is designated exempt, followed by agricultural, then vacant. There is currently only a small portion of commercial, limited use, or multifamily residential within the updated plan area. A description of the land use classifications follows to help ascertain the nature of the existing land uses.

Existing Land Use			
Category	Parcel Count	Total Square Miles	% Total
Exempt	2,374	1,591.9	48.9
Agricultural	2,287	995.2	30.57
Vacant	36,911	473.7	14.55
Residential	29,850	131.9	4.04
Mobile Home	11,144	52.1	1.60
Commercial	1,832	9.8	0.30
Limited Use	372	1.0	0.03
Multi-Res	1,338	0.2	0.01
<b>Total</b>	<b>86,108</b>	<b>3,255.7</b>	<b>100</b>

- **Exempt:** Exempt properties include both government and special district property as well as property tax exempt qualifying property. Government and special district property are used by, or in connection with, all levels of governmental activities, such as federal, state, county and municipal, and also several exempt taxing jurisdictions such as irrigation districts.
- **Agricultural:** Plant nursery, greenhouse, hydroponic greenhouse, field crops, vineyards, crop trees and tree farms, citrus, high-density agriculture such as commodity crops and cotton gins, dairy cooperatives, jojoba, ranch property, pastureland, waste land and fallow land.
- **Vacant:** No improvements on property.
- **Residential:** Single-family residential, qualified as one dominant residence, possibly with an additional residence or affixed manufactured home, serving related households.



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- **Mobile Home:** Mobile/manufactured personal property as manufactured homes and travel trailers, or manufactured homeland, including subdivisions, subdivided or unsubdivided, parks, cooperatives, with some combination of slabs, hook-ups, and related improvements in place.
- **Commercial:** Commercial with residential as secondary use, multi-family residential, live-work, hotels, motels, resorts, miscellaneous, convenience markets, retail strip stores, supermarkets, store combined with other uses, department stores, shopping centers, office buildings, banks, savings and loan associations, credit unions, service stations, truck stops, auto and truck repair, vehicle sales and leasing, vehicle storage, vehicle parts, restaurants, night clubs, bars or taverns, hospitals, medical or dental clinics, emergency care centers, veterinary clinics or medical condominiums, race tracks, private air fields, animal boarding/breeding facilities, cemeteries, mausoleums, mortuaries, crematoriums, golf courses, theaters, amusement facilities, parking facilities, clubs, lodges, privately-owned schools, industrial property.
- **Limited-Use Property:** This category identifies properties which have unique size, shape or other use-limiting characteristics which are not compatible with other use code categories. Includes property used for well sites, tower sites, private roads, etc., or those parcels whose characteristics, such as small size or unusual shape either severely limits or precludes conventional use by itself.
- **Multi-Res:** Multiple-family residential, meaning more than two dwelling units on a single property, serving unrelated households.

## *Land Ownership*

As shown in the table below and on **Figure 4**, a large majority of land in Navajo County belongs to Indigenous tribes and nations, notably including the Hopi reservation, Fort Apache reservation, and Navajo Nation. This highlights the enduring presence of Indigenous communities in shaping the region's landscape and cultural fabric. The next highest land ownership in the County is assigned to private entities, including cities and towns. Many parcels in the County are designated as State land and land belonging to the Bureau of Land Management (BLM). Both entities have varying uses for these land parcels, including recreation, grazing, energy production, mineral extraction, conservation, tourism and recreation, and wildlife habitat preservation. In the southern portion of the County, a large swath of land belongs to the United States Forest Service (USFS) for the management of the Sitgreaves National Forest. Other land ownership in the County includes parcels owned by the County, local and state parks, the National Park Service, and the state wildlife area.

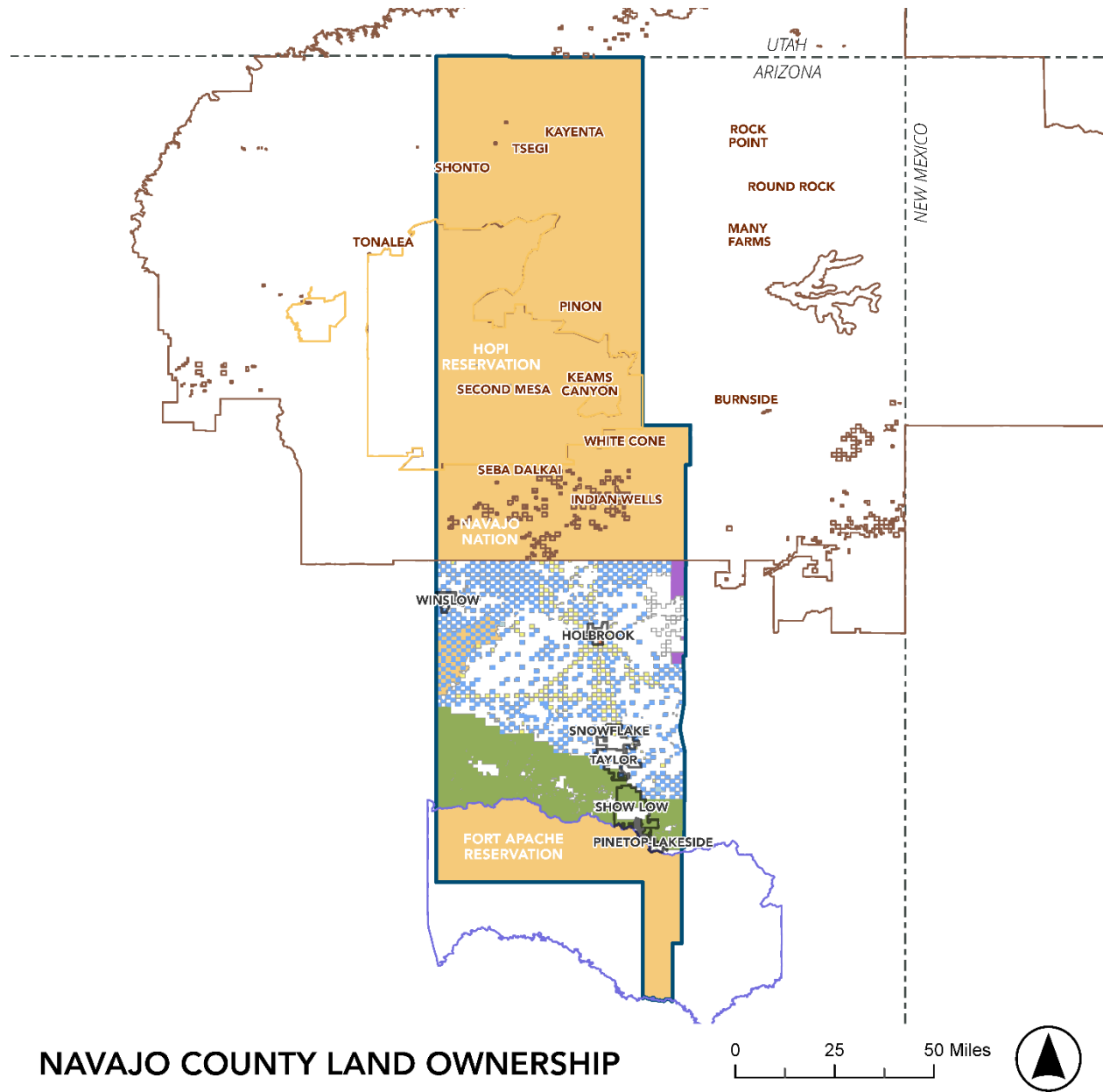
Land Ownership		
Category	Acres	Percent
<b>Indigenous Tribes and Nations</b>	15,136,225	78.965%
<b>U.S. Forest Service</b>	2,019,637	10.536%
<b>Private</b>	1,412,175	7.367%
<b>State</b>	381,807	1.992%
<b>National Park Service</b>	123,184	0.643%
<b>Bureau of Land Management</b>	88,901	0.464%
<b>Bureau of Reclamation</b>	2,693	0.014%
<b>State Wildlife Area</b>	1,721	0.009%
<b>Local or State Parks</b>	1,382	0.007%
<b>County</b>	652	0.003%



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Figure 4: Navajo County Land Ownership Map



## NAVAJO COUNTY LAND OWNERSHIP

- |                         |                             |                              |
|-------------------------|-----------------------------|------------------------------|
| State Boundaries        | Incorporated Cities & Towns | National Park Service        |
| Navajo County Boundary  | Bureau of Land Management   | Private                      |
| Navajo Nation           | County                      | State                        |
| Fort Apache Reservation | Indigenous                  | State Wildlife Area          |
| Hopi Reservation        | Local or State Parks        | United States Forest Service |





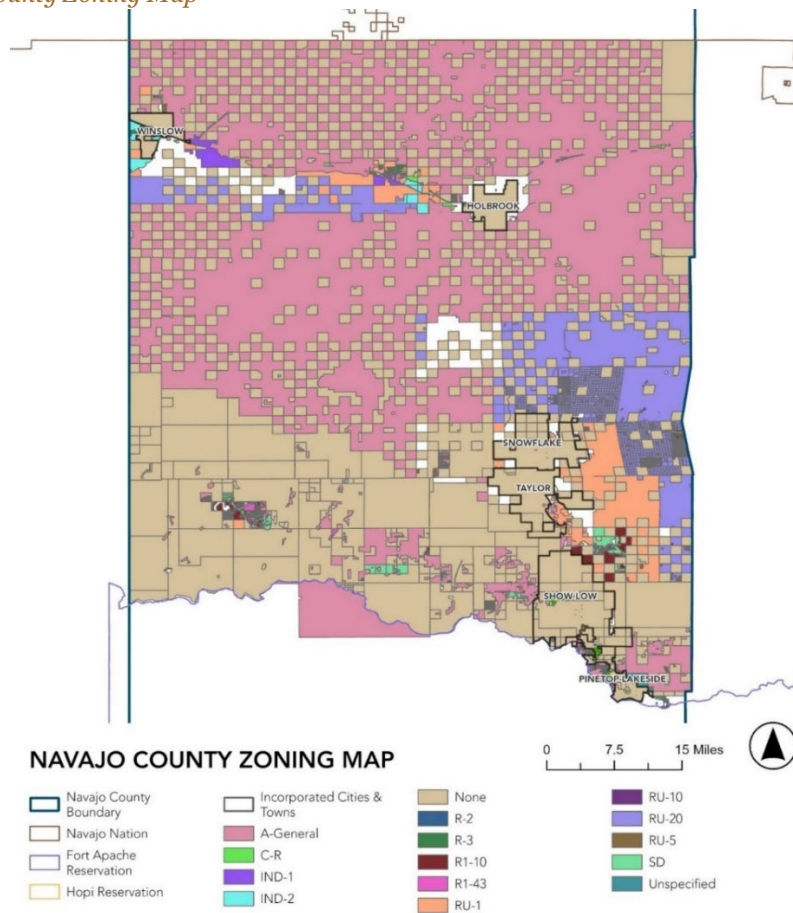
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## Existing Zoning

As shown in **Figure 5**, Navajo County land is zoned under fifteen designations and is largely characterized by many rural zone designations with different codes that signify the allowed dwelling unit density. This is designed to gradate density, moving from more densely populated areas to more rural areas that are intended to have more open space in order to protect open land uses, encourage orderly growth in rural areas, and prevent urban and agricultural land use conflicts. A majority of the land is zoned as “A-General”, which acts as a catch-all for unincorporated areas of the County. The next largest portion of zoning is land that lacks zoning or is zoned as “None,” which is predominately over federally owned lands. This designation, however, is also applied to incorporated cities and towns, as these municipalities have their own zoning designations diverging from the Navajo County designations. The next commonly occurring designation is “RU-20,” which represents rural lands that require twenty acres of land per dwelling unit to maintain the desired character of these areas. Gaps in zoning exist across the County without simple designations including “A-General”, “None”, and “Unspecified” and are represented as white space. The cause of gaps can be attributed to land ownership processes such as land splits or consolidations, which strip the zoning category in the process of change of ownership. While mitigating these data gaps is outside the scope of the Update, it will be recommended that the County resolves this issue by updating its zoning as a short-term implementation task. The rest of the County is zoned into typical designations, including residential, commercial, industrial, and special use zones.

Figure 5: Navajo County Zoning Map





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## Aggregate Resources

Aggregate resources are mineral deposits that occur naturally by earth geological conditions. As highly valuable and finite construction materials, they are critical to the future viability of residential, commercial, and industrial development and must be considered in the planning and development process. Ensuring the sustainable growth of communities requires preventing conflicts between mining operations and other land uses that would otherwise prevent mining development. The 2011 Aggregate Protection Act (SB 1598) requires planning diligence to protect the availability of these mineral resources for the benefit of both existing and future generations.

Countywide population projections indicate that new communities and residential development will be slow and not likely encroach on mining land. Additionally, there are comparatively few active mining sites located within the County, according to the Arizona Geological Survey. Demand is projected to decline due to the projected decrease in population, but aggregate resource planning methods assume rural area demand as relatively high compared to urban and suburban areas and equates to approximately 15 tons/person/year.

Mining exemptions granted in Arizona Revised Statutes limits the location and regulation of aggregate mining operations in unincorporated areas of the state. However, the County can identify aggregate resources within its jurisdictions, and responsible departments can plan for transportation and development, accordingly, including in the Update. According to the Arizona Geological Survey “Active Mines in Arizona” web mapping tool, and as of 2022, there are a total of twenty-two active mines in Navajo County, grouped into three “commodity families” including Aggregates and Crushed Stone, Building Stone, and Cinders. **Figure 6** illustrates the general location of aggregate resources in Navajo County but is not meant to replace more adequate information from registered state geologists.

Navajo County Active Mines								
Company	City	Lat	Long	Mine Plant	Type	Product	Commodity Type	Commodity Family
Perkins Cinder Company	Show Low	34.25689	-110.477	Owens Pit	Open Pit Mine	Cinders	Cinders	Cinders
Brimhall Sand, Rock & Building Materials	Snowflake	34.3305	-109.9641	Cooley Knoll Cinder Pit	Aggregate Plant	Cinders	Cinders	Cinders
Western Materials, LLC	Show Low	34.33047	-109.9608	Western Materials Site #1 at Cooley Knob	Aggregate Plant	Cinders	Cinders	Cinders
Thirsty Stone Resources	Tucson	34.43083	-110.2696	HTH1 Quarry	Quarry	Sandstone	Sandstone	Building Stone
Hatch Construction and Paving, Inc.	Holbrook	34.91861	-110.2256	Perkins Valley Pit	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone
Brimhall Sand, Rock & Building Materials, Inc.	Snowflake	34.51406	-110.0965	Cottonwood Wash / Rim Rock	Aggregate Plant	Sand & Gravel	Sand and Gravel	Aggregates and Crushed Stone
Brimhall Sand, Rock & Building Materials, Inc.	Snowflake	34.51803	-110.0792	Decker Plant	Aggregate Plant	Sand & Gravel	Sand and Gravel	Aggregates and Crushed Stone
Cholla Ready Mix, Inc.	Holbrook	34.80317	-110.0409	Woodruff Butte	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone



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<b>Hatch Construction &amp; Paving, Inc.</b>	Taylor	34.45958	-110.1528	Four Mile Pit	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone
<b>Perkins Cinder Company</b>	Show Low	34.54686	-110.4033	Turly Pit	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone
<b>Surface Contracting, Inc.</b>	Glendale	35.40617	-110.0954	Brimhall Hardluck Operation	Hot Plant	Asphalt	Sand and Gravel	Aggregates and Crushed Stone
<b>Reidhead Sand &amp; Rock, Inc.</b>	Taylor	34.46961	-110.1254	Reidhead Sand & Rock	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone
<b>McCauley's Dyna Rock &amp; Sand Inc.</b>	Winslow	35.00153	-110.6433	Minnetonka Pit	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone
<b>McCauley's Dyna Rock &amp; Sand</b>	Winslow	34.79114	-110.6185	Chevelon	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone
<b>Cemex fka Quality Ready Mix</b>	Show Low	34.51792	-110.0814	Brimhall Cottonwood Operation aka Snowflake RM	Batch Plant	Concrete	Concrete	Aggregates and Crushed Stone
<b>Brimhall Sand Rock &amp; Building Materials</b>	Snowflake	35.01153	-110.6397	Winslow Pit	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone
<b>Brimhall Sand, Rock &amp; Building Materials</b>	Snowflake	35.40561	-110.0787	Hardluck aka Babbitt Homestead	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone
<b>Brimhall Sand, Rock &amp; Building Materials</b>	Snowflake	34.4655	-110.1584	Joe's Pit	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone
<b>Hatch Construction &amp; Paving Inc</b>	Taylor	34.52436	-110.0802	Flake Pit	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone
<b>Perkins Cinders Inc.</b>	Show Low	34.48019	-110.1086	Taylor Pit	Aggregate Plant	Cinders	Sand and Gravel	Aggregates and Crushed Stone
<b>Hatch Construction and Paving, Inc.</b>	Taylor	34.25767	-109.991	Thunder Material Source	Aggregate Plant	Aggregates	Sand and Gravel	Aggregates and Crushed Stone
<b>Hatch Construction and Paving, Inc.</b>	Taylor	34.25767	-109.991	Thunder Material Source	Hot Plant	Asphalt	Sand and Gravel	Aggregates and Crushed Stone

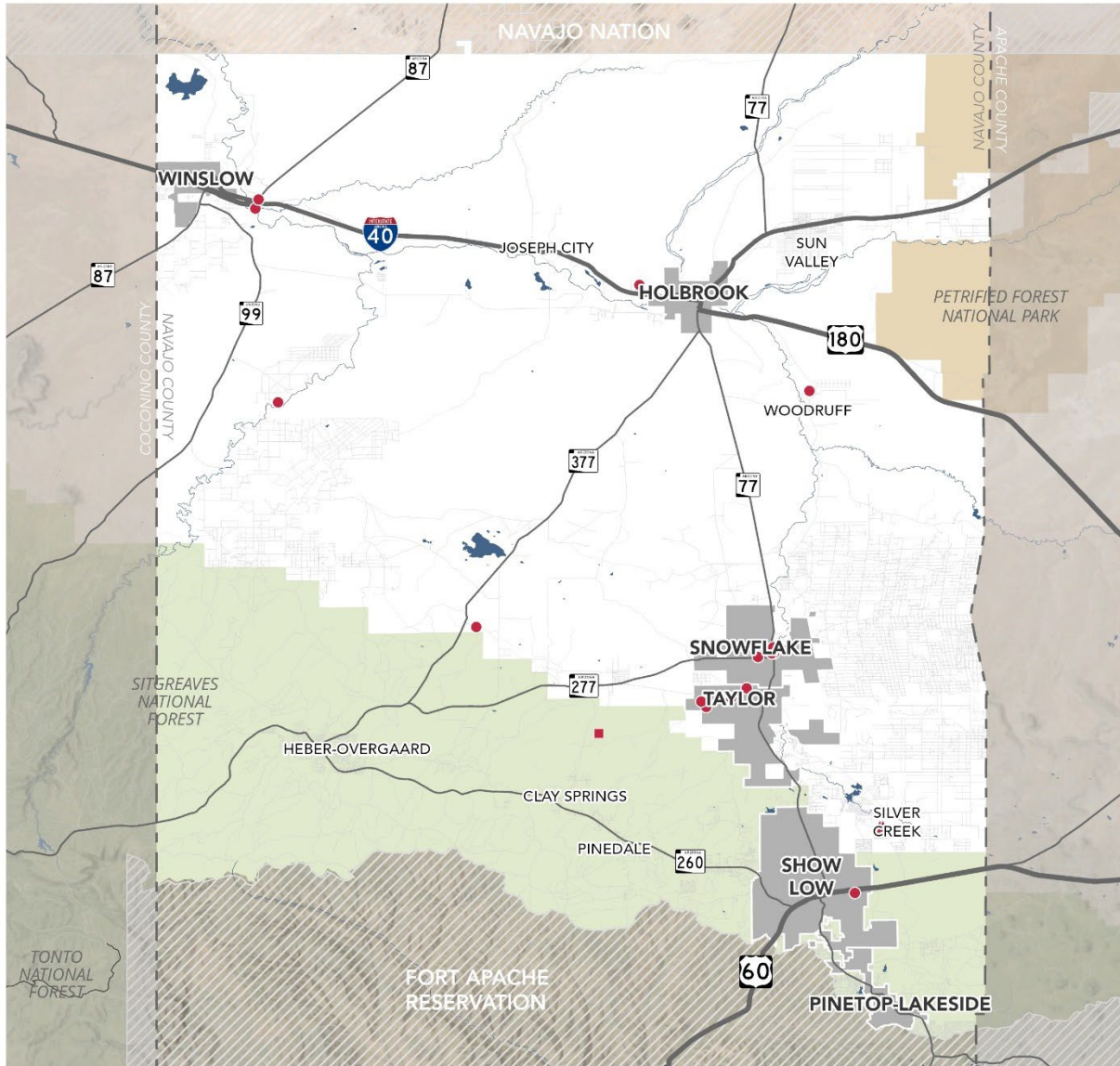
Source: Arizona Geological Survey, 2022



# Navajo County 2050

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Figure 6: Navajo County Aggregate Resources Map



## NAVAJO COUNTY ACTIVE MINES

0 8 15 Miles



- |  |                              |
|--|------------------------------|
| Navajo County Boundary                             | Rivers and Streams           |
| Cities and Towns within Navajo County Jurisdiction | Water Bodies                 |
| Native Lands                                       | Active Cinders (2022)        |
| Petrified Forest National Park                     | Active Building Stone (2022) |
| National Forest                                    | Active Crushed Stone (2022)  |



## *Existing Future Land Use Designations (Character Areas)*

Navajo County currently designates eight different Character Areas shown in **Figure 7**, each detailing different future land use types and intensities for each area covered. Land within municipal boundaries and Native American Reservation land are excluded from the Character Areas.

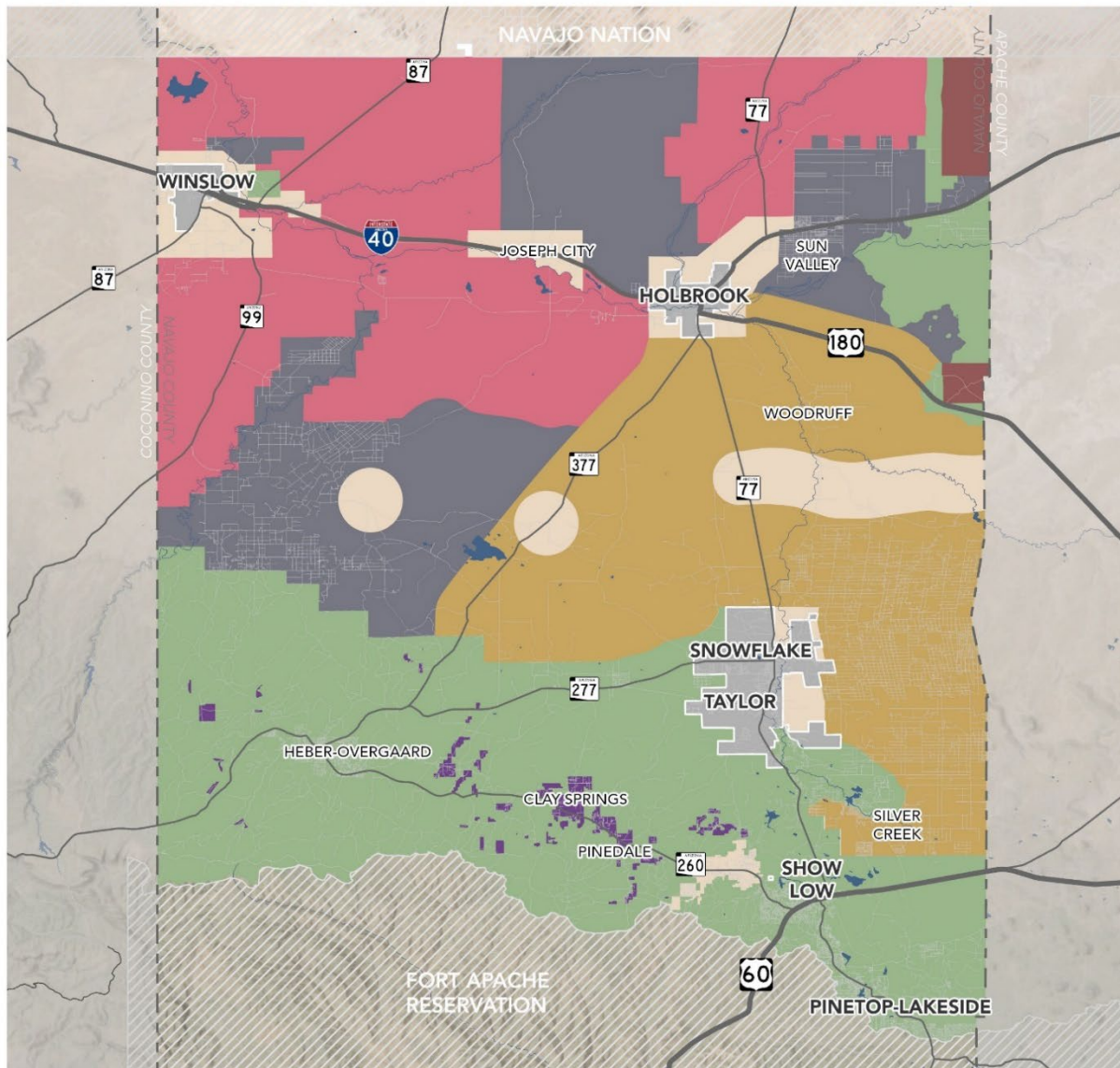
- **Rural Ranch** – The purpose of the Rural Ranch character area is to preserve the open character of land traditionally used for ranching in Navajo County. It may include both low-density residential and limited commercial uses focused on adjacent highways.
- **Range Land** – The purpose of the Range Land character area is to allow cattle ranching, farming, and other traditional Navajo County agricultural uses.
- **Rural Edge** – The purpose of the Rural Edge character area is to provide lower density residential development, adjacent to Community Village character areas. The character area is typically designated for property adjacent to existing or planned areas of higher density and for property generally within two miles of a highway, Projected Future Routes, or other significant roads in the area. Rural Edge may include both low-to-medium density residential and limited commercial uses.
- **Community Village** – The purpose of the Community Village character area is to provide large areas with higher density residential development with a mix of related commercial, industrial, and institutional uses extending from highway corridors and highway intersections. Community Village is an appropriate and encouraged location for uses such as community college campuses and hospitals or medical clinics.
- **Environmentally Sensitive Development Area** – The purpose of the Environmentally Sensitive Development Area (“ESDA”) character area is to provide for limited growth of a full range of development/land uses on environmentally sensitive lands, such as property adjacent to the Petrified Forest National Park, the Petrified Forest National Park Overlay character area, and the Homolovi State Park – the publicly owned and specially designated properties set aside for their scenic, historic, and/or recreational value.
- **Petrified Forest National Park** – The purpose of the Petrified Forest National Park Overlay (“PFNPO”) is to recognize the area into which the Petrified Forest National Park may expand and the sensitivity that development in this area, which is on the fringe of the Park, should have to the Park. It is not a character area.
- **Recreation** - The purpose of the Recreation character area is to provide for monitored growth, particularly of vacation and recreation-oriented uses, on properties surrounded by, and adjacent to, National Forest land.
- **Town Limits or Planning Area**
- **Highway Service** – The purpose of the Highway Service character area is to provide transportation-oriented commercial development nodes along the interstate highway system and other highway-oriented development.



# Navajo County 2050

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Figure 7: Navajo County Character Areas Map



## NAVAJO COUNTY CHARACTER AREAS



- |                        |  |                           |
|------------------------|--|---------------------------|
| Navajo County Boundary | Community Village                          | Range Land                |
| Native Lands           | Environmentally Sensitive Development Area | Recreation                |
| Rivers and Streams     | Petrified Forest National Park             | Rural Edge                |
| Water Bodies           | Rural Ranch                                | Town Limits/Planning Area |



# Navajo County 2050

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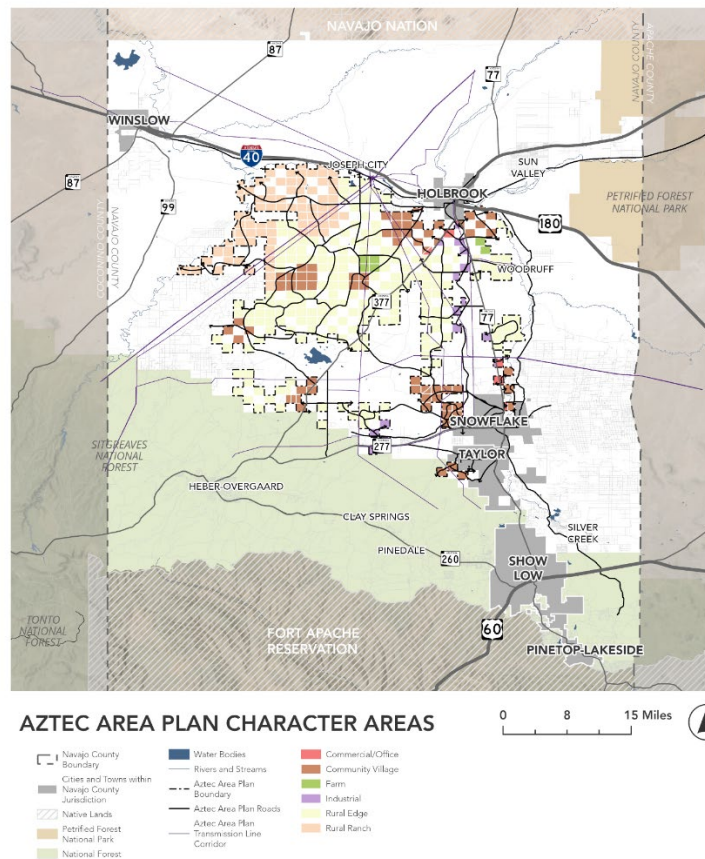
## Aztec Area Plan

The Aztec Area Plan is a governing sub area plan used by the County given statutory authority by reference in the Navajo County Comprehensive Plan. The plan was adopted by the Board of Supervisors on May 24, 2011, as a standalone land use and policy plan for a specific area. This plan helps to coordinate land use and development decisions on a 900 sq. miles area within the focus area of Navajo County. Approximately 356 sq. miles planning area is owned by Aztec Land Company, LLC and Aztec Despain Ranch LLC.

This large planning area spans across distant portions of the unincorporated County area, from Joseph City and Holbrook to the north and Snowflake and Taylor to the South and is shown on **Figure 8**. Also illustrated are the future land use or character area designations within the Aztec Area Plan. The Aztec Character Area map utilizes similar future land use designations from the comprehensive plan as well as a few more designations, but it was designed with the intent that these area plan designations would replace the comprehensive plan’s designations.

The primary use of Aztec’s property today is ranching. There are 31 separate ranches on the property, ranging in area from several hundred acres to thousands of acres. All of the Aztec property is currently leased for cattle grazing activities. Land uses adjacent to the property include other ranches, APS’s Cholla Power Plant, the Catalyst Snowflake Paper Mill, the Catalyst farm, Farmer John Pig Farms and feed mill, the Navajo County government complex, and, at a further distance, low-density residential and ranchette developments.

Figure 8: Aztec Area Plan











## TRANSPORTATION



This section covers primary roadway system; traffic volumes and freight; public transportation services; active transportation facilities; transportation safety; aviation; previous transportation studies, and programed priorities. The chart below illustrates a quick snapshot of the Transportation section.

*By the Numbers for unincorporated Navajo County, Source: ADOT, Navajo County, City of Show Low, City of Winslow, Hopi Tribe, Navajo Nation, WMAT, 2024*

 <p><b>1,027</b> Miles of roadways maintained by Navajo County</p>	 <p><b>2</b> Railroads</p>	 <p><b>70</b> Fatalities from 2018-2022</p>
 <p><b>5</b> Transit services</p>	 <p><b>3</b> State and National parks</p>	 <p><b>70</b> Programed projects</p>





# Navajo County 2050

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## *Primary Roadway System*

Navajo County's roadway system varies widely throughout its boundaries. The County maintains 1,027 miles of roadways of the 1,645 total miles of road in the County. The roadway network has several major state routes, including Interstate 40 (I-40), which connects Winslow and Holbrook; State Route (SR) 77, which connects Holbrook to Show Low; and SR 260, which connects Pinetop-Lakeside to Show Low and Heber-Overgaard. These major corridors are supported by a network of smaller roadways that connect local traffic to these long-distance roadways. **Figure 9** shows the functional classification of roadways in the County.

## *Traffic Volumes and Freight*

Average Daily Traffic (ADT) counts in the County are highest on I-40, reaching nearly 25,000 vehicles daily. The SR 260 corridor, connecting Show Low and Pinetop-Lakeside, and SR 260, west of Heber-Overgaard, also serves higher traffic volumes than other roads in unincorporated Navajo County. Routes such as SR 77 and SR 377 may have a large footprint in the region but do not support high ADTs. **Figure 10** shows traffic volumes in unincorporated, non-Tribal areas of Navajo County. Freight volumes along the County's roadway network exceed 500 heavy vehicles per day along major corridors, including I-40 and US 60 east of Show Low.

There are two major railroad lines that run through the study area. The Burlington Northern Santa Fe (BNSF) runs parallel to I-40, running east-west through the County. This BNSF line provides frequent freight rail service between Navajo County and the rest of the country. The Apache Railway runs parallel to SR 77, connecting from Holbrook to McNary. Although the original Apache Railway service is inactive, the route and infrastructure are used by BNSF and available to other freight rail providers as needed. Railroads in the County area is shown in **Figure 10**.

One of the strengths of Navajo County is its transportation infrastructure. Interstate 40 is a major freeway connecting the Los Angeles basin to the southern and Midwest portions of the U.S. The freeway carries approximately 23,300 vehicles per day through Winslow including 10,300 trucks. The presence of the freeway provides significant opportunities for transportation and logistics-related industries.

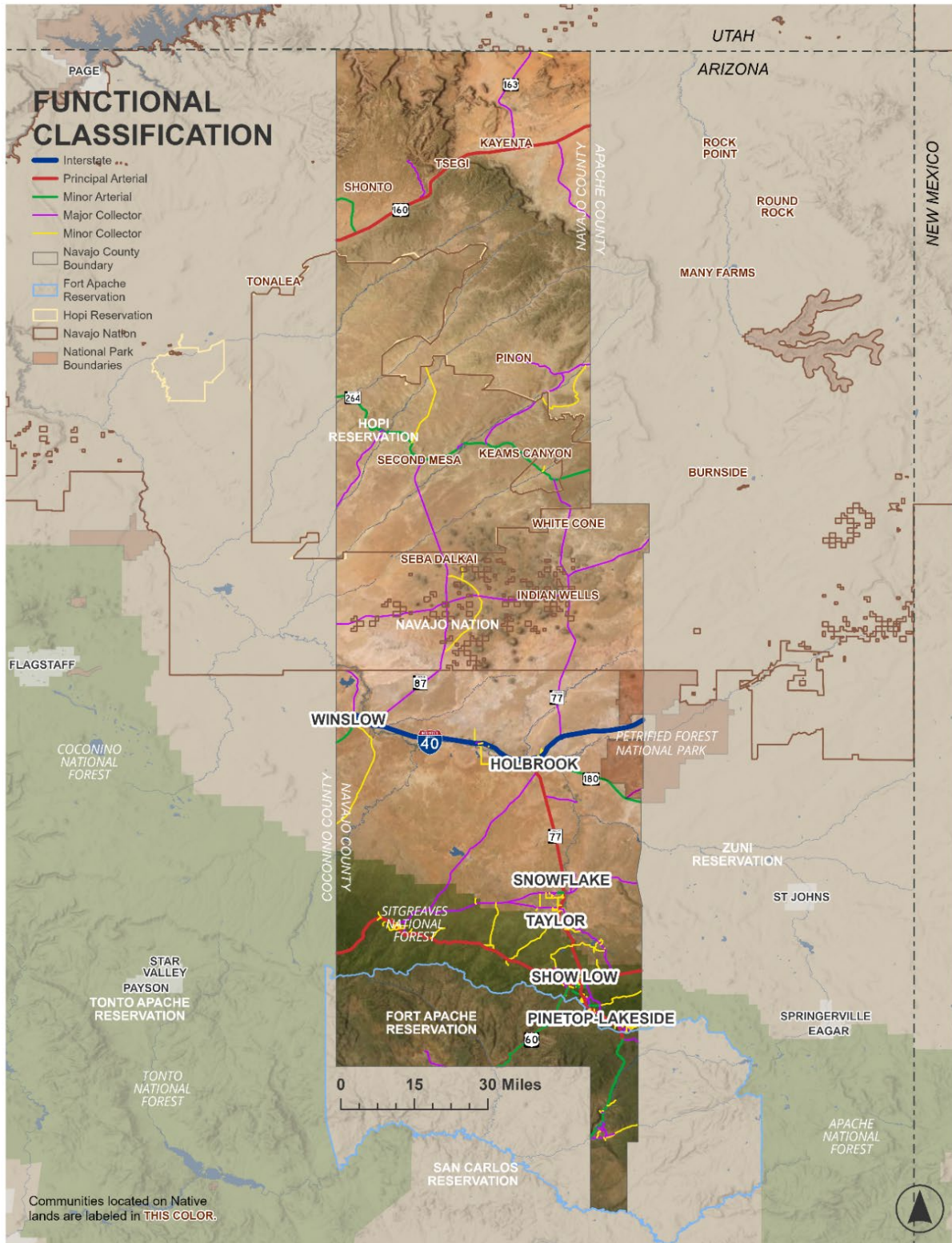
The BNSF Railroad's Southern Transcon route extending through the central part of the County is also one of the most important rail routes in the country, connecting the Los Angeles area with the central and eastern U.S. Winslow is a crew change point on the route which means that the majority of the train crews get on a train here and take the shipments to Phoenix, Belen, New Mexico, or Needles, California. The crews then work back in the opposite direction.



# Navajo County 2050

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Figure 8. Functional Classification

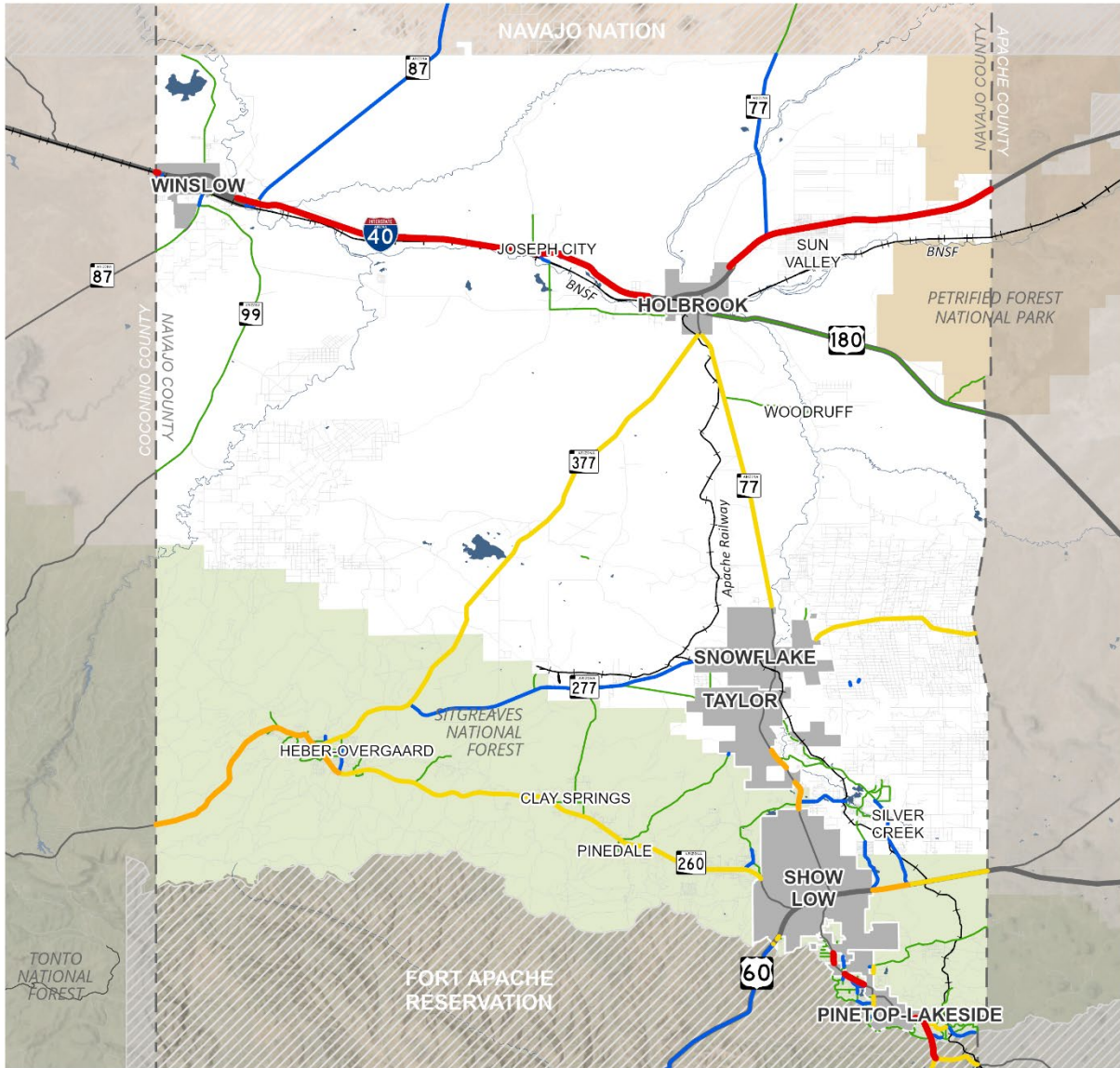




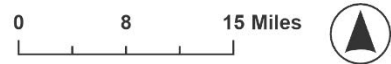
# Navajo County 2050

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Figure 9. Traffic Volumes and Railroads



## TRAFFIC VOLUMES AND RAILROAD



- |                          |  |
|--------------------------|--|
| — Less than 1,000        | — Cities and Towns within Navajo County Jurisdiction |
| — 1,000 to 3,000         | ▨ Native Lands                                       |
| — 3,000 to 7,000         | ▨ Petrified Forest National Park                     |
| — 7,000 to 15,000        | ▨ National Forest                                    |
| — Greater than 15,000    | — Rivers and Streams                                 |
| — Railroad               | — Water Bodies                                       |
| — Navajo County Boundary |  |



# Navajo County 2050

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## Public Transportation Services

There are five public transportation providers in Navajo County:

- **The City of Show Low** provides a fixed route to the communities of Show Low and Pinetop-Lakeside via the Four Seasons Connection (FSC). Show Low also provides commuter service to Pinetop-Lakeside, Show Low, Taylor, Snowflake, and Holbrook via the White Mountain Connection (WMC).
- **The City of Winslow** provides demand-response service within city limits, as well as subdivisions in unincorporated County, including Hopi Housing Kachina Gardens, Bushman Acres, and Winslow Airport.
- **The White Mountain Apache Tribe (WMAT)** provides fixed-route service via the Fort Apache Connection Transit, with one local fixed route and two commuter routes. Route 1 provides service from the tribe’s transit center to the Hon-Dah Casino. Route 2 provides service connecting White River to the Casino. Route 3 provides local fixed route service within the Tribe’s boundary. Routes 1 and 2 can connect to the FSC operated by the City of Show Low.
- **The Navajo Nation** operates the Navajo Transit System, providing service throughout the Tribal nation. The system provides two routes connecting to Navajo County outside the Navajo Nation, including Route 9, connecting Dijon to Fort Defiance, and Route 10, connecting Pinon to Fort Defiance.
- **The Hopi Tribe** also provides transit service within the Tribe’s boundary within and outside of Navajo County, providing service to Winslow from the Hopi Reservation.

Annual ridership in 2022 by the service provider is shown below.

2022 Ridership by Service	
Agency	Ridership
City of Show Low	83,254
City of Winslow	1,731
WMAT	5,706
Hopi Senom	42,487
Navajo Nation	44,275
<i>Source: NTD, City of Show Low, City of Winslow, WMAT, Hopi Senom, Navajo Nation</i>	

## Active Transportation Facilities

Sidewalk and bicycle facilities are limited outside of the incorporated jurisdictions and Tribal lands. Sidewalks are limited to the state highway system in populated areas. County-maintained roadways do not have sidewalk infrastructure. Although bicycle infrastructure is present at the local level, regional connectivity of bicycle infrastructure is not present. There are two state parks and one national park in the County, Fool Hollow Lake Recreation Area, Homolovi State Park, and the Petrified Forest National Park. There are over 1,200 miles of trails within the state and national parks, although there are no other official trails in unincorporated Navajo County.



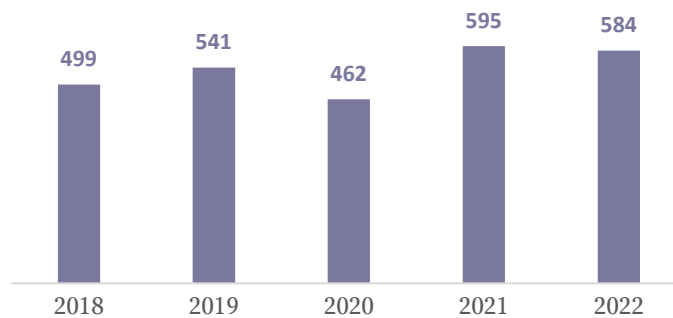
## Transportation Safety

There were 2,681 crashes from 2018 to 2022 in unincorporated Navajo County and outside of Tribal lands. The number of annual crashes has been on a steady increase from 2018 to 2022, although crashes did decrease during 2020, likely due to the COVID-19 Pandemic. The number of crashes in 2022 is 17% higher than the number of crashes in 2018. Most crashes resulted in no injury, as shown in the Crash Severity chart. While only 3% of total crashes resulted in a fatality, that is more than three times higher than the statewide average of less than 1%.

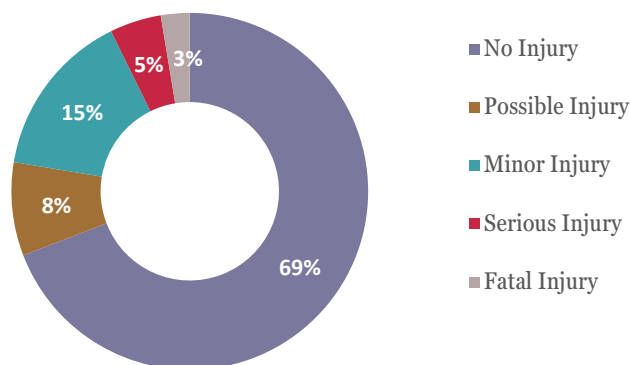
**Figure 11** shows the crash density on County-maintained roads. High crash densities are common surrounding incorporated jurisdictions, Heber-Overgaard, and the community of White Mountain Lakes, as these are the most populated areas in the unincorporated portions of the County. Roadways with high crash density include Concho Highway, Bourdon Ranch Road, McLaws Road just outside of Holbrook, Black Canyon Road in Sitgreaves National Forest, and Pulp Mill Road near Clay Springs.

Of the crashes observed from 2018 to 2022, 19 involved pedestrians or cyclists. Although most crashes occurred in daylight conditions, 36% of crashes took place in dark unlighted conditions. Two of every three crashes involved only a single vehicle, which is typical of rural areas.

Annual Total Crashes (2018-2022)



Crash Severity (2018-2022)

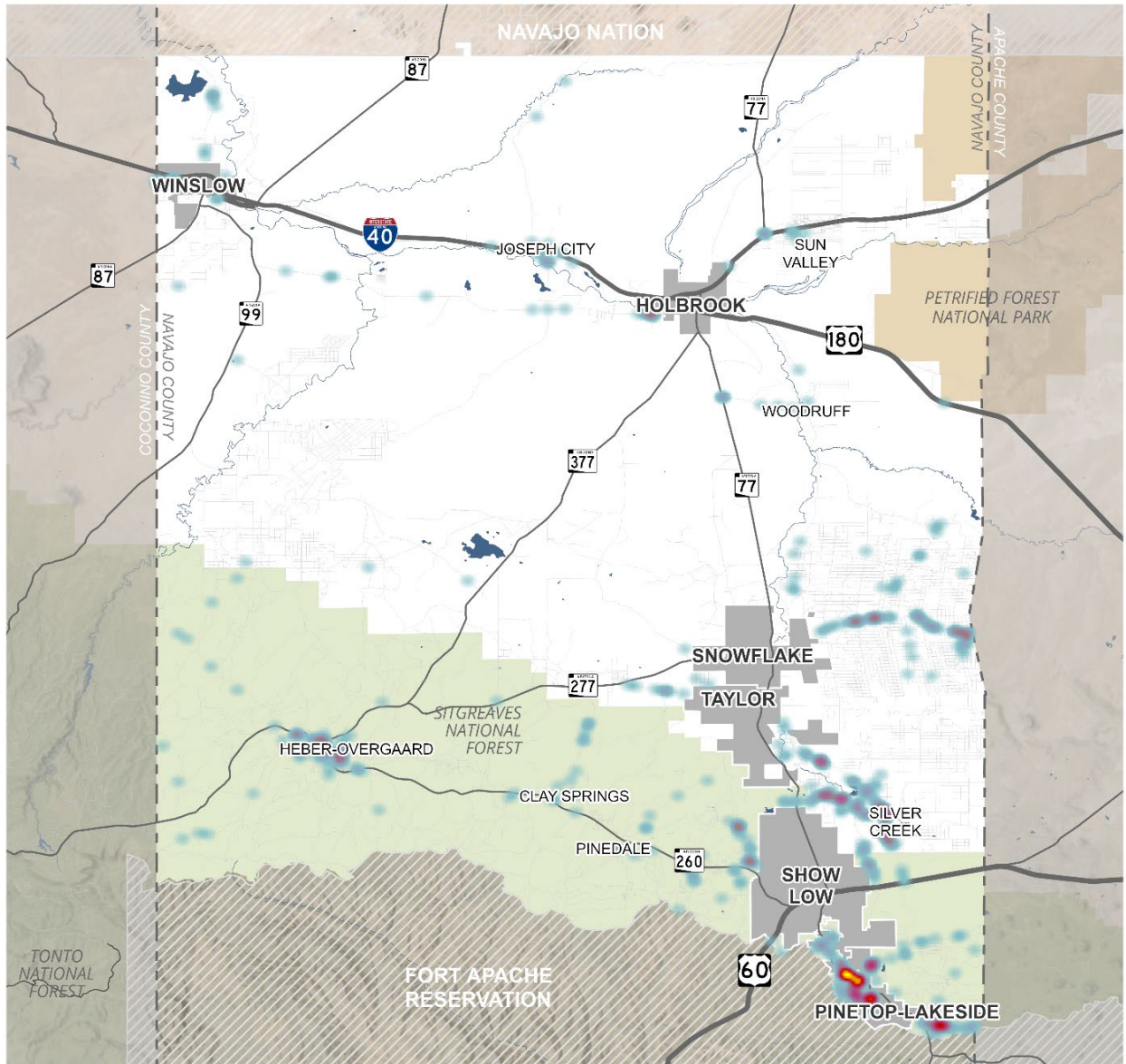




# Navajo County 2050

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Figure 10: Navajo County Crash Density Map



## CRASH DENSITY

- |  |                                |            |
|--|--------------------------------|------------|
|  |                                |            |
| Sparse   | Native Lands                   | Highway    |
|  |                                |            |
| Dense  | Petrified Forest National Park | Major Road |
|  |                                |            |
| Navajo County Boundary                             | National Forest                | Local Road |
|  |                                |            |
| Cities and Towns within Navajo County Jurisdiction | Rivers and Streams             | Minor Road |
|  |                                |            |
|  | Water Bodies                   | Ramp       |
|  |                                |            |
|  | Limited Access                 |            |

0 8 15 Miles





# Navajo County 2050

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## Aviation

There are 13 active airports within County limits; nine are publicly owned, and four are privately owned general aviation (GA) airports. Airports are classified based on the type and number of operations (takeoffs and landings) they support. GA airports do not support commercial service; however, they play an integral role at both local and statewide levels by connecting local communities to the broader resources of the state.

The most notable airports in Navajo County include the Show Low Regional Airport, supporting 19,674 operations in 2022, and the Winslow-Lindbergh Regional Airport, supporting 24,210 operations in 2020. The table below and **Figure 12** show airports within the County.

Airports in Navajo County, Federal Aviation Administration (FAA) Airport Data Information Portal (ADIP)					
Airport Name	Airport Code	Airport Type	Annual Operations	Year	Based Aircraft
Cibecue Airport	Z95	General Aviation	10	2021	0
Holbrook Municipal Airport	P14	General Aviation	3,700	2021	Single Engine – 9
Kayenta Airport	0V7	General Aviation	2,000	2022	0
Mogollon Airpark	AZ82	General Aviation (Private)	0	-	Single Engine – 40 Multi Engine – 6
Polacca Airport	P10	General Aviation	20	2022	0
Rocky Ridge Airport	50AZ	General Aviation (Private Facilities)	0	-	0
Show Low Regional Airport	SOW	General Aviation	19,674	2022	Single Engine – 29 Multi Engine – 2 Jet – 1
Summit Healthcare Regional Medical Center Airport	AZ75	General Aviation (Private)	0	-	0
Taylor Airport	TYL	General Aviation	3,130	2021	Single Engine – 15
White Mountain Lake Airport	21AZ	General Aviation (Private)	80	1980	0
Whiteriver Airport	E24	General Aviation	3,910	2021	0
Winslow-Lindbergh Regional Airport	INW	General Aviation	24,210	2020	Single Engine – 5 Multi Engine – 1 Jet – 1
Wisky Ranch/Chevron Airport	6AZ2	General Aviation (Private)	32	2020	Single Engine – 3 Multi Engine – 1

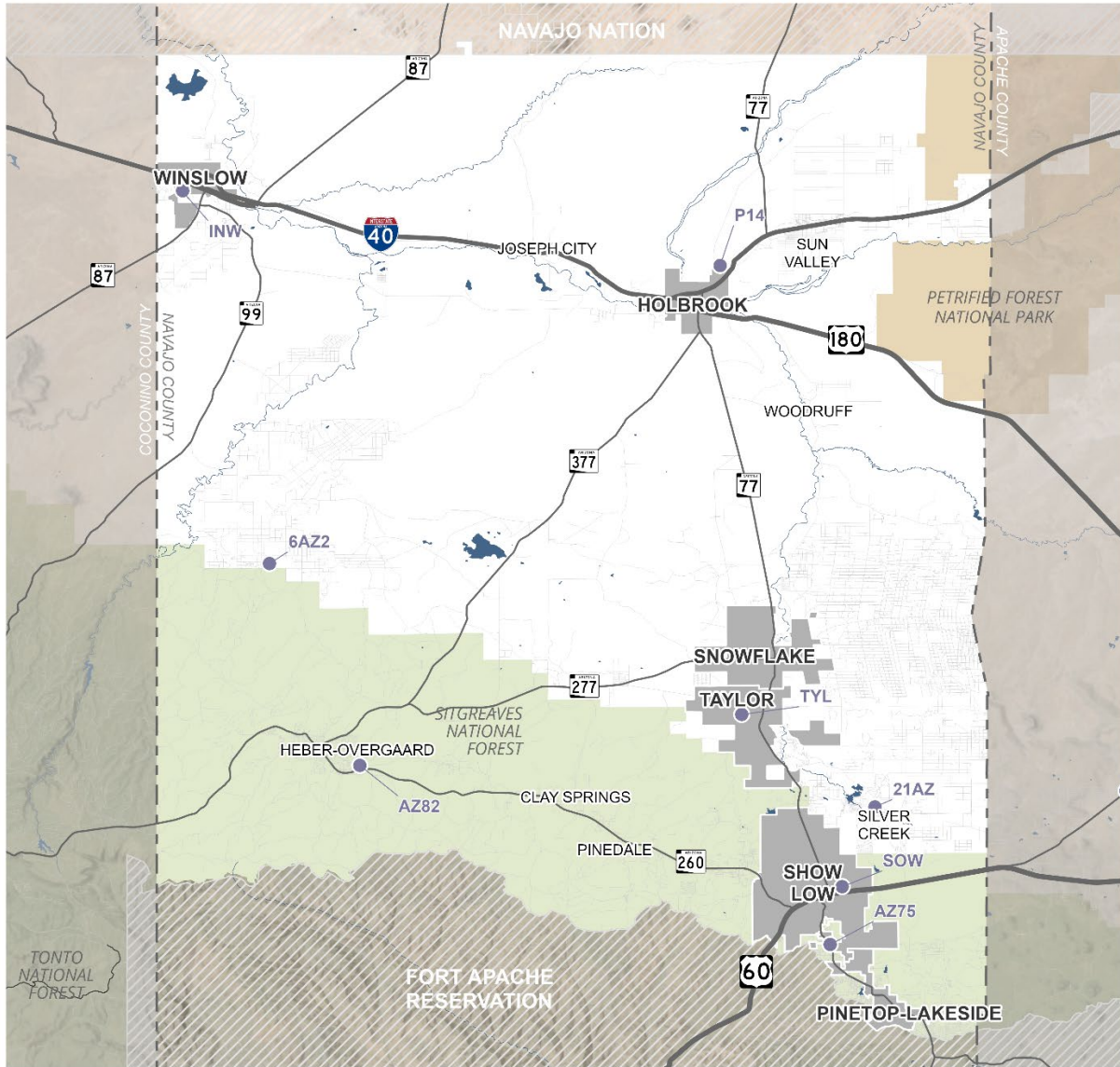
Note: Year of most recent annual operations not consistent among airports surveyed



# Navajo County 2050

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Figure 11: Navajo County Airports Map



## AIRPORTS

- Airports
- ▭ Navajo County Boundary
- ▭ Cities and Towns within Navajo County Jurisdiction
- ▨ Native Lands
- ▭ Petrified Forest National Park
- ▭ National Forest
- ▭ Water Bodies
- ▭ Limited Access
- ▬ Highway
- ▬ Major Road
- ▬ Local Road
- ▬ Minor Road
- ▬ Ramp

0 8 15 Miles







# Navajo County 2050

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## Programmed Projects

There are several capital improvement projects that Navajo County has programmed for the years 2024 through 2028, totaling nearly \$7.5 million and addressing issues including drainage, roadway maintenance, bridges, and traffic. The table below and **Figure 13** shows the County’s programmed projects. The majority of the programmed projects are concentrated between Snowflake and Pinetop-Lakeside.

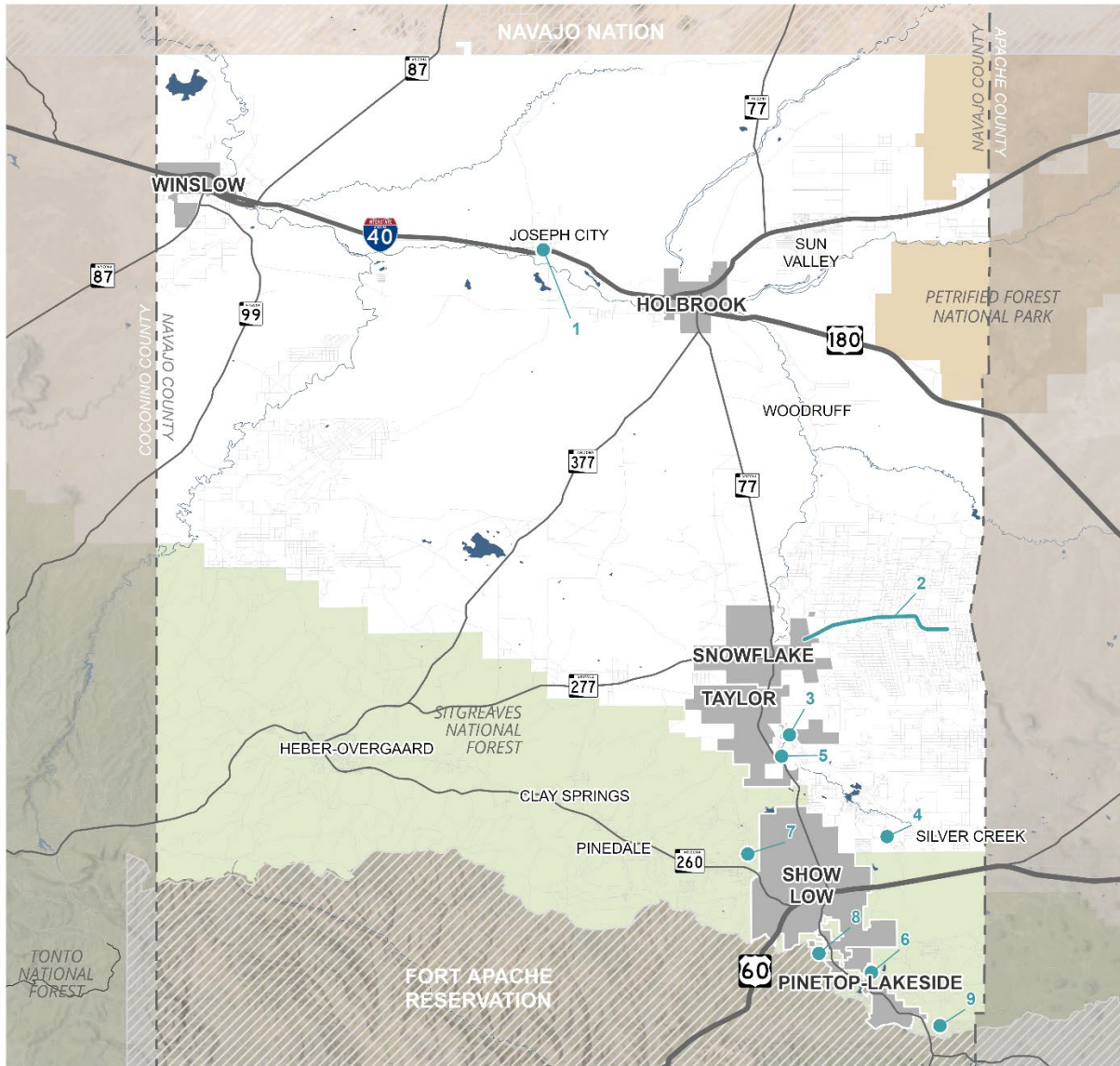
Programmed Projects					
Project ID	Project Name	Type	Programmed Total (\$)	Location	To/From
1	Joseph City Sidewalk Improvements	Other	1,140,000	Joseph City	
2	Concho Highway Rehabilitation	Modernization	2,499,000	Snowflake	Willis Ranch Road/Pinto Road
3	Bourdon Ranch Road – Millet Swale Drainage Improvements	Drainage	938,095	Millet Swale	Bourdon Ranch Road/Hunt Ranch View Road
4	Bourdon Ranch Road & Roundup Drive Turn Lane	Traffic	1,082,838	Silver Creek	Bourdon Ranch Road/Roundup Drive
5	Silver Creek Bridge at Shumway Road	Bridge	180,000	Silver Creek	Shumway Road/ Silver Creek
6	Porter Creek Culvert Replacement	Drainage	558,200	Pinetop-Lakeside	Porter Mountain Road/Mountain View Way
7	Shilo & Arrowhead Pass	Drainage	60,000	Linden	Shilo Trail/Arrowhead Pass
8	Webb Drive & Starlight Ridge Road	Rehabilitation	980,000	Pinetop-Lakeside	Wagon Wheel Lane/Starlight Ridge Road
9	Buck Springs Road Equestrian Crossing	Traffic	58,983	Pinetop-Lakeside	Branding Iron Loop /Buck Springs Road



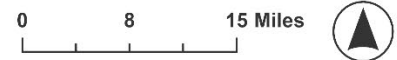
# Navajo County 2050

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Figure 12. Programmed Projects



## PROGRAMMED PROJECTS



- |  |                                |            |
|--|--------------------------------|------------|
| Programmed Projects                                | Petrified Forest National Park | Major Road |
| Navajo County Boundary                             | National Forest                | Local Road |
| Cities and Towns within Navajo County Jurisdiction | Rivers and Streams             | Minor Road |
| Native Lands                                       | Water Bodies                   | Ramp       |
|  | Limited Access                 |            |
|  | Highway                        |            |



# Navajo County 2050

Supporting Prosperity and Preservation

## HOUSING

### Navajo County Housing Inventory

Navajo County’s housing inventory is comprised of 56,556 units, according to the 2022 5-Year estimates from the American Community Survey. 37,565 of those units are occupied on a year-round basis by permanent residents. An estimated 18,991 units are considered vacant or 33.6% of the total inventory. This vacancy percentage is much higher than the Arizona vacancy estimate.

Vacant units are classified in several ways including units that are in the process of being sold or rented and those used for seasonal or recreational purposes. Approximately 72.9% of all vacant units in the County are used for seasonal purposes or 24.5% of total units in the County. Housing data for the incorporated communities in the County show that high levels of seasonal housing are found in Pinetop-Lakeside, Show Low, and the unincorporated area.

Navajo County’s seasonal housing inventory on a percentage basis is 4.1 times higher than the Arizona inventory. The County’s 13,850 seasonal housing units are likely to increase the population of the County by more than 27,700 persons during the summer months (only assuming two persons per unit) or an increase of 27% of the permanent population of the County. Some of the vacant seasonal units and those noted as “other vacant” could be short-term rentals, but the Census does not track this type of rental housing.

Occupancy & Vacancy Status, Navajo County									
	Holbrook	Pinetop-Lakeside	Show Low	Snowflake	Taylor	Winslow	Unincorp Area	Navajo County	Arizona
<b>Total Housing Units</b>	<b>1,743</b>	<b>3,316</b>	<b>7,756</b>	<b>1,874</b>	<b>1,538</b>	<b>2,941</b>	<b>37,388</b>	<b>56,556</b>	<b>3,097,768</b>
<b>Occupied</b>	1,528	1,769	4,806	1,743	1,397	2,549	23,773	37,565	2,739,136
<b>Vacant</b>	215	1,547	2,950	131	141	392	13,615	18,991	358,632
<b>Percent Vacant</b>	<b>12.3%</b>	<b>46.7%</b>	<b>38.0%</b>	<b>7.0%</b>	<b>9.2%</b>	<b>13.3%</b>	<b>36.4%</b>	<b>33.6%</b>	<b>11.6%</b>
Vacancy By Type									
<b>Total vacant units</b>	<b>215</b>	<b>1,547</b>	<b>2,950</b>	<b>131</b>	<b>141</b>	<b>392</b>	<b>13,615</b>	<b>18,991</b>	<b>358,632</b>
<b>For rent</b>	-	135	57	-	-	85	322	599	49,288
<b>Rented, not occupied</b>	-	49	77	32	-	-	56	214	12,560
<b>For sale only</b>	50	33	195	-	-	54	272	604	21,593
<b>Sold, not occupied</b>	-	25	51	-	14	-	44	134	15,055
<b>For seasonal, recreational use</b>	61	1,161	2,373	65	61	-	10,129	13,850	182,078
<b>For migrant workers</b>	-	-	-	-	-	-	4	4	859
<b>Other vacant</b>	104	144	197	34	66	253	2,788	3,586	77,199
<b>% Seasonal, recreational use of total housing units</b>	<b>3.5%</b>	<b>35.0%</b>	<b>30.6%</b>	<b>3.5%</b>	<b>4.0%</b>	<b>0.0%</b>	<b>27.1%</b>	<b>24.5%</b>	<b>5.9%</b>

Source: American Community Survey 5-year 2022



# Navajo County 2050

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Navajo County has a high percentage of single-family detached units compared to the statewide average and a lower percentage of multifamily units which is typical for a non-urban community. Only 2.6% of all housing units or 1,473 units are considered apartments or multifamily (buildings with five or more units in a building) in the County compared to 16.2% across the state. Navajo County also has a high percentage of mobile homes compared to the state. The housing mix in the County may, in effect, restrict renters from living in the area. If renters desire to live in the County, the lack of apartment units may force them to rent single-family homes or mobile homes, which often have higher rents.

Units in Structure, Navajo County									
	Holbrook	Pinetop-Lakeside	Show Low	Snowflake	Taylor	Winslow	Unincorp Area	Navajo County	Arizona
<b>Total Units</b>	<b>1,743</b>	<b>3,316</b>	<b>7,756</b>	<b>1,874</b>	<b>1,538</b>	<b>2,941</b>	<b>19,168</b>	<b>56,556</b>	<b>3,097,768</b>
1, detached	1,209	2,346	4,659	1,568	1,199	2,127	13,108	40,162	1,980,519
<b>1, attached</b>	11	253	302	12	0	61	639	1,333	156,105
<b>2</b>	116	89	24	23	65	114	431	940	40,872
<b>3 or 4</b>	65	36	269	0	22	173	565	1,197	104,188
<b>5 to 9</b>	30	115	176	0	109	79	509	677	118,113
<b>10 to 19</b>	6	11	147	0	0	77	241	284	123,186
<b>20 to 49</b>	9	0	269	0	0	39	317	358	77,532
<b>50 or more</b>	0	0	57	0	0	16	73	154	184,128
<b>Mobile home</b>	297	449	1,841	271	143	255	3,256	11,269	201,286
<b>Boat, RV, van, etc.</b>	0	17	12	0	0	0	29	182	11,839
Percent of Total									
<b>1, detached</b>	69.4%	70.7%	60.1%	83.7%	78.0%	72.3%	68.4%	71.0%	63.9%
1, attached	0.6%	7.6%	3.9%	0.6%	0.0%	2.1%	3.3%	2.4%	5.0%
2	6.7%	2.7%	0.3%	1.2%	4.2%	3.9%	2.2%	1.7%	1.3%
3 or 4	3.7%	1.1%	3.5%	0.0%	1.4%	5.9%	2.9%	2.1%	3.4%
5 to 9	1.7%	3.5%	2.3%	0.0%	7.1%	2.7%	2.7%	1.2%	3.8%
10 to 19	0.3%	0.3%	1.9%	0.0%	0.0%	2.6%	1.3%	0.5%	4.0%
20 to 49	0.5%	0.0%	3.5%	0.0%	0.0%	1.3%	1.7%	0.6%	2.5%
50 or more	0.0%	0.0%	0.7%	0.0%	0.0%	0.5%	0.4%	0.3%	5.9%
Mobile home	17.0%	13.5%	23.7%	14.5%	9.3%	8.7%	17.0%	19.9%	6.5%
Boat, RV, van, etc.	0.0%	0.5%	0.2%	0.0%	0.0%	0.0%	0.2%	0.3%	0.4%
Apartment Inventory - 5-50 Units	2.6%	3.8%	8.4%	0.0%	7.1%	7.2%	5.9%	2.6%	16.2%

Source: American Community Survey 5-year 2022

Navajo County has a high percentage of owner-occupied units and a lower percentage (27.7%) of renter-occupied units relative to the statewide average. Holbrook and Winslow have high a percentage of renters compared to the rest of the County. The County-wide trend of high homeownership rates is consistent with



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what is typically found in the non-urban parts of Arizona, particularly in communities with tourism-oriented economies.

Housing Tenure, Navajo County									
	Holbrook	Pinetop-Lakeside	Show Low	Snowflake	Taylor	Winslow	Unincorp Area	Navajo County	Arizona
<b>Occupied Units</b>	<b>1,528</b>	<b>1,769</b>	<b>4,806</b>	<b>1,743</b>	<b>1,397</b>	<b>2,549</b>	<b>23,773</b>	<b>37,565</b>	<b>2,739,136</b>
<b>Owner</b>	928	1,332	3,265	1,364	1,086	1,297	17,891	27,163	1,815,352
<b>Renter</b>	600	437	1,541	379	311	1,252	5,882	10,402	923,784
<b>Percent of Total</b>									
<b>Owner</b>	60.7%	75.3%	67.9%	78.3%	77.7%	50.9%	75.3%	72.3%	66.3%
<b>Renter</b>	39.3%	24.7%	32.1%	21.7%	22.3%	49.1%	24.7%	27.7%	33.7%

Source: American Community Survey 5-year 2022

The table below shows that nearly 22% of all detached single-family homes in the County are rented, compared to 17% statewide. Similarly, 22% of mobile homes are rented.

Units By Type & Tenure, Navajo County					
Unit Type	Owner Occupied		Renter Occupied		Total Units
	Units	% of Total	Units	% of Total	
<b>Total Units</b>	<b>27,163</b>		<b>10,402</b>		<b>37,565</b>
1, detached	20,769	78.3%	5,764	21.7%	26,533
1, attached	565	71.3%	227	28.7%	792
2	-	0.0%	703	100.0%	703
3 or 4	68	7.4%	857	92.6%	925
5 to 9	-	0.0%	505	100.0%	505
10 to 19	60	21.1%	224	78.9%	284
20 to 49	-	0.0%	309	100.0%	309
50 or more	27	17.5%	127	82.5%	154
Mobile home	5,600	78.0%	1,578	22.0%	7,178
Boat, RV, van, etc.	74	40.7%	108	59.3%	182

Source: American Community Survey 5-year 2022

## Residential Building Permits

Despite forecasts by the Arizona State Demographer for Navajo County to experience a declining population in future years, building permit activity over the last eight years has been robust. Permitting declined after 2010 due to the impacts from the Great Recession. Since 2016, however, an annual average of 447 new units have been built in the County. Permitting peaked in 2021 with 722 units, largely due to the effects of the COVID pandemic. Preliminary estimates for 2023 show a total of 367 permits were issued.



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Since 2018, 93% of all residential permits have been for single-family detached units. Duplex through four-plex units accounted for 3.8% of all permits. Multifamily units accounted for just 3.3% of all permits with a total of 98 units.

Residential Building Permits, Navajo County							
Year	Navajo County	Unincorp Area	Pinetop-Lakeside	Show Low	Snowflake	Taylor	Remaining Towns
2010	140	71	8	50	3	2	6
2011	100	60	7	27	0	1	5
2012	93	60	11	13	2	3	4
2013	144	81	16	35	7	3	2
2014	191	94	28	55	6	2	6
2015	177	81	31	52	8	3	2
2016	221	117	17	66	11	5	5
2017	361	181	30	113	19	13	5
2018	368	153	32	118	42	18	5
2019	381	162	33	115	50	14	7
2020	577	244	54	167	65	30	17
2021	722	341	65	200	64	38	14
2022	580	258	44	174	57	40	7
2023	367	104	34	100	84	37	8

Source: U.S. Census Bureau

The current population forecasts from the State of Arizona suggest that Navajo County will start to decline in population in 2024. There appears to be a disconnect between housing construction activity in the County and population forecasts, although some of the residential permitting is related to second home development that will not affect the permanent population estimates. However, the most recent 2023 population estimate shows the County grew by more than 1,200 persons over 2022.

### Short-Term Rentals

In some tourist communities, short-term rentals (STRs) of homes and apartment units, offered on platforms such as VRBO or Airbnb, have impacted the availability of housing for permanent residents. The short-term rental website AirDNA was accessed to determine the potential number of rentals that may be available in Navajo County. The data indicates there are 1,241 active short-term rentals in Show Low and Pinetop-Lakeside, with a few additional units scattered in the outlying areas of the County. Most are clustered in the central part of the city with a few additional units in the White Mountain Lakes area.

Short-Term Rentals, Navajo County	
Community	Active Rentals
Lakeside	281
Pinetop	611
Show Low	349
<b>Total</b>	<b>1,241</b>

Source: AirDNA



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The 1,241 STRs that are active in Navajo County represent about 3.3% of the 37,565 occupied housing units in the County. While this does not appear to be a significant percentage of the housing stock, it still represents units that could have been made available to people who are looking to permanently move to or work in the County. These units could address the lack of affordable housing in the region if made available to permanent residents.

The data listed on the AirDNA website has not been verified through any other sources. Hotels and timeshare rentals are known to list units on the main STR platforms which can affect the total available units. However, the AirDNA website likely provides an indication of the number of short-term rentals in the area. The extent of short-term rentals in the County should be monitored periodically to determine if they become more of an issue than they might already be.

## *Apartment Inventory*

An inventory of traditional apartment complexes was conducted for this report. The inventory was prepared from various available records including those from the Arizona Department of Housing which oversees the Low-Income Housing Tax Credit (LIHTC) program and the U.S. Department of Agriculture (USDA) which provides housing subsidies and loans in rural areas. The inventory outlined in the following table may not include all apartment units in smaller apartment communities but is the best information available.

The County’s inventory of apartment units is comprised of mostly small and medium size complexes, the largest being 152 units in size. Virtually all properties are listed as LIHTC or USDA complexes with an inventory of 1,317 units. The most recently built affordable complex was completed in 2019 in Hon-dah on the Fort Apache Reservation. Only three market rate complexes were identified in the County totaling 236 units.

The following table provides a sampling of apartment rents and unit sizes in Navajo County. The vacancy rate is very low at 2.9% for the sample of complexes. The average unit size is 907 square feet with a rent of \$970 per month. Overall, the apartment market appears to be at full capacity. The three market-rate complexes are noted in the table. The remaining properties were all originally financed through LIHTC or USDA programs. Due to the age of some of the complexes, they may have transitioned to market-rate rents.

Apartment Rent Sample, Navajo County								
Property Name	Property Address	City	Units	Year Built	Vacancy %	Avg SF	Avg Rent	Rent Type
Timberstone Apartments	100 W Cooley St	Show Low	136	2007	5.9%	992	\$637	Affordable
Winslow Manor	901 W Desmond St	Winslow	42	1990	1.8%	614	\$955	Affordable
Elk Ridge	1901 W Deuce of Clubs	Show Low	152	2006	0.0%	895	\$1,388	Market
Pinetop Hills Apartments	1450 S Emma Dr	Pinetop	64	2006	0.4%	944	\$818	Affordable
Appletree Apartments	1752 W Jackson Ln	Lakeside	48	1982	8.3%	637	\$1,225	Market
Mountain Village Senior Apartments	301 E McNeil	Show Low	46	2005	2.6%	772	\$916	Affordable
Mountain Park Apartments	3060 E Show Low Lake Rd	Show Low	72	2004	6.0%	1,088	\$1,667	Affordable
Mountain Top Village	4850 S White Mountain Rd	Show Low	36	2000	0.3%	1,071	\$942	Market



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Ponderosa Meadows Apartments	250 N 16th Ave	Show Low	42	1994	2.4%	783	\$677	Affordable
Winslow Crossing	1800 W Fleming St	Winslow	52	2005	2.6%	1,075	n/a	Affordable
Ponderosa Park Apartments	981 W McNeil	Show Low	42	1990	0.6%	769	\$875	Affordable
<b>Totals/Averages</b>			<b>732</b>		<b>2.9%</b>	<b>903</b>	<b>\$970</b>	

Source: Costar

Most of the apartment complexes in Navajo County have been built with some type of subsidies, grants, or favorable financing. Approximately 29% of all affordable units have been built on Native American reservations (378 units). The remaining units are widely dispersed across the County.

Low-Income Housing Tax Credit (LIHTC) and USDA Apartment Complexes, Navajo County									
Year	Project Name	Address	City	Financing	LI Units	Mkt Units	Mgr Unit	Total Units	Pop
2003	Apache Ridge II	Palomino Road	Whiteriver	LIHTC	21	0	1	22	Family
2000	Apache Ridge Townhomes	235 W. Fatco Road	Whiteriver	LIHTC	22	0	0	22	Family
2003	AZ 16 - 26	Sites on White Mountain Apache Reservation	Whiteriver	LIHTC	40	0	0	40	Family
2005	AZ 16-34 Chinatown Rehab Project	Various Addresses	Whiteriver	LIHTC	41	0	0	41	Family
2007	AZ 16-36 Chinatown Rehab	Scattered Sites	Whiteriver	LIHTC	49	0	0	49	Family
2007	AZ 16-70 WMAHA IV	Scattered Sites	Whiteriver	LIHTC	20	0	0	20	Family
1983	Coronado Two Apts	204 Mission Ln	Holbrook	USDA	23	1	0	24	Family
2005	Fairway Manor Townhomes	Snowflake Country Club on Lyon Crest Dr	Snowflake	LIHTC	60	0	0	60	Family
1992	Grantree Apartments	90 W. Old Linden Road	Show Low	LIHTC	24	0	0	24	Family
2000	Holbrook Court Apartments	109 Court Lane	Holbrook	LIHTC	24	0	0	24	Family
1994	Homestead West	40 Rodeo Drive	Lakeside	LIHTC	32	0	0	32	Elderly
1997	Jeddito Townhomes	P.O. Box 1015	Keams Canyon	LIHTC	24	0	0	24	Family
1966	Kachina Garden Apartments	4607 Coopertown Rd	Winslow	USDA	52	0	0	24	Family
1990	Mountain Oaks Apartments	150 N. 5th Street	Show Low	LIHTC	26	0	0	26	Family
2007	Mountain Oaks Apartments	897 W. Hillcrest Circle	Show Low	LIHTC	26	0	0	26	Elderly
2002	Mountain Park Apartments	3060 E. Show Low Lake Rd.	Show Low	LIHTC	72	0	0	72	Family





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2002	Mountain Village	301 E. McNeil	Show Low	LIHTC	41	27	0	68	Elderly
2002	Mustang Ridge Townhomes	Tribal Highway 3	Cibecue	LIHTC	21	1	0	22	Family
2004	Park Meadows	NWC of Highland Blvd. & Indian Village Rd	Taylor	LIHTC	41	0	1	42	Family
1999	Parkview Apartments	1159 Bales Avenue	Winslow	LIHTC	24	0	0	24	Family
2004	Pinetop Hills Apartments	Highway 289 & Penrod	Pinetop-Lakeside	LIHTC	63	0	1	64	Family
1993	Ponderosa Meadows	250 N. 16th Street	Show Low	LIHTC	40	0	0	40	Family
1988	Ponderosa Park Apartments	981 W. McNeil	Show Low	LIHTC	41	0	0	41	Family
1988	Rainbow Lake	1921 Rainbow Lake Place	Lakeside	LIHTC	24	0	0	24	Family
2009	Rainbow Lake Apartments	1853 & 1921 Rainbow Lake Pl	Lakeside	LIHTC	36	0	0	36	Family
1990	Rainbow Lake II	1921 Rainbow Lake Place	Lakeside	LIHTC	12	0	0	12	Family
2015	Rodeo Court	40 Rodeo Drive	Lakeside	LIHTC	32	0	0	32	Family
1988	Sierra Blanca Apartments	126 W. Willow Lane	Taylor	LIHTC	24	0	0	24	Family
1985	Show Low Apartments	1451 W McNeil	Show Low	USDA	30	0	0	30	Family
2005	Timberstone	160 W. Cooley Street	Show Low	LIHTC	80	0	0	80	Family
2006	Timberstone Apartments II	200 W. Cooley Street	Show Low	LIHTC	56	0	0	56	Family
2008	White Mountain Villas	307 E. McNeil Street	Show Low	LIHTC	32	0	0	32	Senior
2004	Winslow Crossings	Corner of Fleming Street & Gorman Avenue	Winslow	LIHTC	52	0	0	52	Family
2017	WMAHA #7	Lumber/Desert Storm/Lagoon/Hollywood	Cibecue	LIHTC	44	0	0	44	Tribal
2019	WMAHA #8	Power Line Road and Fox Street	Hon-dah	LIHTC	28	0	0	28	Family
2009	WMAHA Homes V	Scattered Sites	Whiteriver	LIHTC	40	0	0	40	Family
<b>Totals</b>					<b>1317</b>	<b>29</b>	<b>3</b>	<b>1321</b>	
<b>Native American Units</b>					378	1	1	380	
<b>Non-Native American Units</b>					939	28	2	941	

Source: Arizona Department of Housing



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The LIHTC program is the most important resource for creating affordable housing in the United States today. The program gives state housing agencies the authority to issue tax credits for the acquisition, rehabilitation, or new construction of rental housing targeted to lower-income households. Rather than a direct subsidy, the program encourages investment of private capital for rental housing by providing a credit to offset an investor’s federal income tax liability. LIHTC complexes must be rented to households earning less than 60% of the area’s median income. For Navajo County, the median family income is estimated at \$64,100 for a family of four in 2024. Sixty percent (60%) of the Navajo County area median income is \$38,640. Qualifying incomes are dependent on family size.

### *Navajo County Ownership Housing Market*

The price of single-family housing in Navajo County has increased by 90% over the past five years from an average of \$249,000 to \$429,000 in the first two months of 2024. Prices hit a peak average of \$474,000 in 2023 before declining in the early part of 2024. The decline may be due to the slow winter selling season and prices could still climb throughout the current year.

## **Navajo County Home Price Trends**

*Source: Navajo County Assessor*



The price of single-family housing in Navajo County varies widely depending upon location. The Pinetop Country Club and Show Low are the most expensive markets; Holbrook and Winslow are the least



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expensive. Sales were strong in 2021 and 2022 but slowed in 2023. Most of the sales activity was in Heber/Overgaard, Lakeside-Pinetop, the Pinetop Country Club, and Show Low.

Navajo County Home Price Trends							
Average Home Price	2018	2019	2020	2021	2022	2023	Feb 2024
CHEVELON	-	-	\$45,500	\$320,000	\$99,500	-	-
EAST SNOWFLAKE	\$0	\$201,333	\$273,843	\$258,782	\$235,636	\$293,429	-
HEBER/OVERGAARD	\$220,176	\$237,197	\$257,174	\$330,515	\$398,747	\$432,056	\$419,732
HOLBROOK	\$125,702	\$156,545	\$141,102	\$165,428	\$190,487	\$186,571	\$148,000
LAKESIDE PINETOP	\$243,616	\$266,282	\$351,151	\$393,888	\$502,011	\$454,370	\$401,456
LINDEN	\$251,172	\$285,903	\$319,502	\$374,431	\$431,044	\$440,511	\$505,675
PINETOP COUNTRY CLUB	\$332,934	\$344,655	\$417,860	\$546,558	\$604,571	\$634,243	\$599,232
SHOWLOW	\$297,697	\$292,831	\$355,432	\$420,665	\$515,785	\$586,035	\$525,012
SNOWFLAKE/TAYLOR	\$193,019	\$218,421	\$242,803	\$305,994	\$371,161	\$378,068	\$303,430
WHITE MOUNTAIN	\$168,225	\$222,814	\$221,369	\$297,622	\$357,475	\$322,514	\$460,000
WINSLOW	\$126,664	\$141,350	\$147,878	\$174,446	\$213,547	\$195,066	\$203,370
<b>Average</b>	<b>\$249,087</b>	<b>\$263,146</b>	<b>\$312,383</b>	<b>\$374,683</b>	<b>\$438,771</b>	<b>\$474,040</b>	<b>\$428,992</b>
<b>Percent Change</b>		<b>5.6%</b>	<b>18.7%</b>	<b>19.9%</b>	<b>17.1%</b>	<b>8.0%</b>	<b>-9.5%</b>
Number of Sales	2018	2019	2020	2021	2022	2023	Feb 2024
CHEVELON	-	-	1	2	2	-	-
EAST SNOWFLAKE	-	3	7	9	11	7	-
HEBER/OVERGAARD	95	100	140	157	156	163	14
HOLBROOK	16	20	45	35	39	24	2
LAKESIDE PINETOP	82	101	130	196	139	119	13
LINDEN	24	28	44	54	41	38	6
PINETOP COUNTRY CLUB	66	66	156	127	109	111	3
SHOWLOW	152	188	272	329	290	266	25
SNOWFLAKE/TAYLOR	52	74	98	118	136	96	10
WHITE MOUNTAIN	12	7	13	23	32	29	2
WINSLOW	32	28	58	77	81	55	5
<b>Total</b>	<b>531</b>	<b>615</b>	<b>964</b>	<b>1,127</b>	<b>1,036</b>	<b>908</b>	<b>80</b>
<b>*Through February 22, 2024</b>							
<i>Source: Navajo County Assessor</i>							

The lack of affordable housing primarily falls upon those in service jobs that have moderate wages. The following chart shows the Navajo County median wage for a variety of occupations, some of which are considered critical service jobs such as firefighters, paramedics, and police officers. Even with a reasonable downpayment, the cost for a typical home is well beyond the reach of most households. With only 1,300 affordable apartment units in the County and a very low vacancy rate, finding housing for many of these households would be difficult.

The wage data displayed below does not take into account that a household may have two wage earners. However, for single person households or families where only one person works, the availability of



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affordable housing is a critical need. Without such housing, persons or households must find roommates or double up in rental units.

Housing Affordability by Occupation, Navajo County			
Occupation	2021 Average wage	Monthly Affordable Housing Cost (30%)	Monthly Affordable Rent (Less Utilities)
Hotel, Motel, and Resort Desk Clerks	\$28,510	\$713	\$613
Retail Salespersons	\$32,558	\$814	\$714
Cooks, Restaurant	\$33,539	\$838	\$738
Nursing Assistants	\$37,325	\$933	\$833
Construction Laborers	\$37,647	\$941	\$841
Waiters and Waitresses	\$41,971	\$1,049	\$949
Firefighters	\$42,386	\$1,060	\$960
Paramedics	\$42,950	\$1,074	\$974
Pharmacy Technicians	\$42,971	\$1,074	\$974
Elementary School Teachers	\$46,880	\$1,172	\$1,072
Secondary School Teachers	\$55,837	\$1,396	\$1,296
Licensed Practical Nurses	\$58,430	\$1,461	\$1,361
Police and Sheriff's Patrol Officers	\$59,769	\$1,494	\$1,394
Registered Nurses	\$85,495	\$2,137	\$2,037

*Source: AZ OEO*

## Housing Gap

The housing gap is the difference between the rents or housing values in a community and the ability of households to afford those rents or values. Affordability has become an issue over the past few years for households due to rents and values that have increased well above the rate of inflation. Housing affordability affects low and moderate-income households as well as workforce households that include many essential occupations such as teachers, police, firemen, and nurses.

There has been much discussion about the term “affordable housing”. “Affordable” is often associated with housing for the lowest income households. “Workforce” or “attainable” housing is often associated with the demand from critical service providers or essential personnel such as police, firefighters, nurses, schoolteachers, and others. In the context of this study, the term “affordable” will apply to all households that are burdened by housing costs or those that can’t find housing due to its cost relative to household income. Affordable housing refers to a continuum of housing demand that affects persons from the lowest income levels to those earning above the area median income. A healthy economy and housing market should address all these demand sectors.

Households are considered burdened by the cost of housing if rent and other housing costs total more than 30% of total household income. For a homeowner, the cost of housing typically includes a mortgage, property taxes, and insurance. For a renter, the cost of housing is rent and utilities. The U.S. Department of Housing and Urban Development also recognizes households that pay more than 50% of income towards



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housing known as an “severely cost burdened.” Across the country, approximately one-third of all households are considered cost burdened and about 16% are severely burdened.

The following table outlines the housing burden for renter households in Navajo County based on the U.S. Census 5-year American Community Survey. In total, 30% of all renter households or 3,130 families spend more than 30% of their income on housing. Of those 3,130 households, 1,153 spend more than 50% of their income on housing. These households are considered severely rent overburdened. The housing cost burden for renters in Navajo County is lower than the statewide average, but still totals more than 3,000 households.

**Table 17: Gross Rent as % of Household Income**

Total Occupied Rental Units	Navajo County Households	%	Arizona Households	%
	<b>10,402</b>		<b>923,784</b>	
<b>Less than 10.0%</b>	1,183	11.4%	35,142	3.8%
<b>10.0 to 14.9%</b>	1,276	12.3%	74,485	8.1%
<b>15.0 to 19.9%</b>	1,294	12.4%	109,103	11.8%
<b>20.0 to 24.9%</b>	908	8.7%	116,546	12.6%
<b>25.0 to 29.9%</b>	758	7.3%	104,188	11.3%
30.0 to 34.9%	661	6.4%	81,788	8.9%
35.0 to 39.9%	581	5.6%	6,073	0.7%
40.0 to 49.9%	735	7.1%	81,268	8.8%
50.0% or more	1,153	11.1%	199,522	21.6%
Not computed	1,853	17.8%	61,669	6.7%
<b>Paying More Than 30%</b>	<b>3,130</b>	<b>30.1%</b>	<b>368,651</b>	<b>39.9%</b>
<b>Paying More Than 50%</b>	<b>1,153</b>	<b>11.1%</b>	<b>199,522</b>	<b>21.6%</b>

*Source: American Community Survey 5-year 2022*

One of the largest groups of households affected by the cost of housing are those that earn moderate incomes. These households are most appropriately housed in affordable housing units typically owned by a government entity or non-profit, with rents set at 30% of the household’s income.

Renters are not the only households that are burdened by the cost of housing. Homeowners also can be burdened by mortgages and other costs that exceed the 30% income threshold. It should be noted, however, that homeowners typically have more options than renters to address their housing burden. For instance, an owner could sell the home and in theory move to a less costly unit if one is available. Similarly, homeowners could have voluntarily increased their housing costs beyond 30% by taking out a second mortgage or home equity loan on the home. These factors all affect the housing burden of homeowners while renters have limited opportunities to reduce their housing burden.

According to the Census, 16.1% of all owner-occupants in Navajo County pay more than 30% of their income towards housing (4,203 households). However, even for this segment of the population, housing can be burdensome, particularly for retired persons on limited incomes. Property taxes, insurance, utilities, and other costs can often cause housing costs to exceed 30% of income.



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Gross Rent as % of Household Income							
	Holbrook	Pinetop-Lakeside	Show Low	Snowflake	Taylor	Winslow	Unincorp Area
<b>Total Occupied Rental Units</b>	<b>600</b>	<b>437</b>	<b>1,541</b>	<b>379</b>	<b>311</b>	<b>1,252</b>	<b>5,882</b>
Less than 10.0%	31	10	145	52	22	56	867
10.0 to 14.9%	162	18	62	38	-	172	824
15.0 to 19.9%	73	83	144	61	123	95	715
20.0 to 24.9%	99	54	72	57	41	169	416
25.0 to 29.9%	45	25	100	45	24	51	468
30.0 to 34.9%	46	24	247	8	44	71	221
35.0 to 39.9%	29	10	248	-	-	55	239
40.0 to 49.9%	39	15	192	-	41	123	325
50.0% or more	57	157	168	56	-	220	495
Not computed	19	41	163	62	16	240	1,312
<b>Paying More Than 30%</b>	<b>171</b>	<b>206</b>	<b>855</b>	<b>64</b>	<b>85</b>	<b>469</b>	<b>1,280</b>
<b>Paying More Than 50%</b>	<b>57</b>	<b>157</b>	<b>168</b>	<b>56</b>	<b>-</b>	<b>220</b>	<b>495</b>
<b>% Paying More Than 30%</b>	<b>28.5%</b>	<b>47.1%</b>	<b>55.5%</b>	<b>16.9%</b>	<b>27.3%</b>	<b>37.5%</b>	<b>21.8%</b>

Source: American Community Survey 5-year 2022

The percentage of homeowners in Navajo County burdened by housing costs is actually lower than the statewide average which stands at 20.9%. This could be due to the large number of mobile or manufactured homes in the County, which make up about 20% of the County’s housing stock. Some parts of the County also show modest housing values, which can assist with reducing the housing burden.

Income Range	Navajo County			Arizona		
	Owner Households	Burdened by Housing	% Burdened by Housing	Owner Households	Burdened by Housing	% Burdened by Housing
Less than \$20,000	4,049	2,132	52.7%	125,713	97,640	77.7%
\$20,000 to \$34,999	4,160	915	22.0%	160,791	79,936	49.7%
\$35,000 to \$49,999	3,308	625	18.9%	172,920	67,123	38.8%
\$50,000 to \$74,999	4,676	293	6.3%	296,674	75,415	25.4%
\$75,000 or more	9,893	238	2.4%	1,039,083	54,648	5.3%
<b>Totals</b>	<b>26,086</b>	<b>4,203</b>	<b>16.1%</b>	<b>1,795,181</b>	<b>374,762</b>	<b>20.9%</b>

Note: Totals do not include data that was not computed by the Census

Source: ACS 2022 5-Year Estimate



## ECONOMIC GROWTH

Navajo County is situated in one of the least densely populated areas of Arizona and shares its boundaries with several Native American communities. As will be shown in this section, its economy is built on several service industries that include tourism, healthcare, retail, and government.

### Location Quotient

The strengths and weaknesses of a local economy can be illustrated by a very simple metric known as the “Location Quotient” or LQ which compares the percentage of jobs in each industry in a community to a larger economy, such as the state. An LQ over 1.0 indicates that a particular industry has a greater presence in the local economy compared to the state – hence a strength of the local area. An LQ less than 1.0 means an industry is less concentrated in the local economy and, hence, is a potential weakness of an economy. The LQ for Navajo County is shown on the following chart for comparative purposes. The County has several strengths in its local economy compared to the State that benefits the community, including Private Education and Health Services; Leisure and Hospitality; and Government.

Health services are a primary strength as the County’s healthcare facilities provide services across much of northeastern Arizona. Leisure and Hospitality employment is reflective of the County’s vacation and second home market and hotel industry. Government has an extremely high LQ because of the presence of federal lands and natural attractions in the area. However, a high government LQ often occurs where there are lower levels of private employment relative to the overall economy. Overall, Service Providing jobs, which include the categories above, have a higher LQ than the statewide average. On the negative side, Good Producing jobs, which are typically higher paying jobs and often include the production of export-related goods, have a low LQ of 0.51. Business services, finance, and manufacturing are some of the weaknesses in the economies of both communities, but not unexpected for a non-urban region of the State. Trade, Transportation, and Utilities have an LQ of 0.97 near the statewide average.

2023 Location Quotient					
Industry	Navajo County		Arizona		Location Quotient
	Jobs	% of Total	Jobs (1,000's)	% of Total	
Total Nonfarm Jobs	<b>27,950</b>		<b>3,194.8</b>		
Total Private	18,425	65.9%	2,769.7	86.7%	0.76
Goods Producing	1,875	6.7%	420.5	13.2%	0.51
Mining and Construction	1,625	5.8%	226.0	7.1%	0.82
Manufacturing	250	0.9%	194.5	6.1%	0.15
Service-Providing	26,075	93.3%	2,774.3	86.8%	1.07
Private Service-Providing	16,550	59.2%	2,349.2	73.5%	0.81
Trade, Transportation, and Utilities	5,250	18.8%	617.0	19.3%	0.97
Information	250	0.9%	51.1	1.6%	0.56
Financial Activities	575	2.1%	242.1	7.6%	0.27
Professional and Business Services	1,200	4.3%	467.4	14.6%	0.29
Private Education and Health Services	4,675	16.7%	518.2	16.2%	1.03
Leisure and Hospitality	4,000	14.3%	351.5	11.0%	1.30
Other Services	600	2.1%	101.9	3.2%	0.67
Government	9,525	34.1%	425.1	13.3%	2.56



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Federal Government	1,950	7.0%	58.4	1.8%	3.82
State and Local Government	7,575	27.1%	366.7	11.5%	2.36
<i>Source: AZ OEO</i>					

The list of major employers in the County shows that the largest businesses are heavily weighted toward healthcare, retail, and government which includes local school districts. There are no manufacturing companies within the top 37 employers in the County. These numbers come from the MAG statewide employment database and likely include all employees of a particular company including back show operations.

Navajo County Major Employers		
Employer Name	Employees	Cluster
Walmart	1,000	Retail
Summit Healthcare Association	790	Health Care
State of Arizona	600	Government, Social, & Advocacy Services
Navajo County	520	Government, Social, & Advocacy Services
Haven of Show Low LLC	510	Health Care
United States Indian Health Services	500	Health Care
Blue Ridge Unified School District No 33	490	Education
Hon Dah Hotel and Casino	470	Hospitality, Tourism, & Recreation
Snowflake Unified District	370	Education
Hopi Tribe	340	Government, Social, & Advocacy Services
Holbrook Unified School District 3	320	Education
Safeway	320	Retail
Bashas	310	Retail
Aires	300	Government, Social, & Advocacy Services
Usphs Indian Health	300	Health Care
United States Postal Service	290	Transportation & Distribution
McDonalds	280	Consumer Services
Show Low Unified School District 10	280	Education
White Mountain Apache Tribe	280	Government, Social, & Advocacy Services
Veterans' Health Administration	260	Health Care
Winslow Memorial Hospital Inc	210	Health Care





# Navajo County 2050

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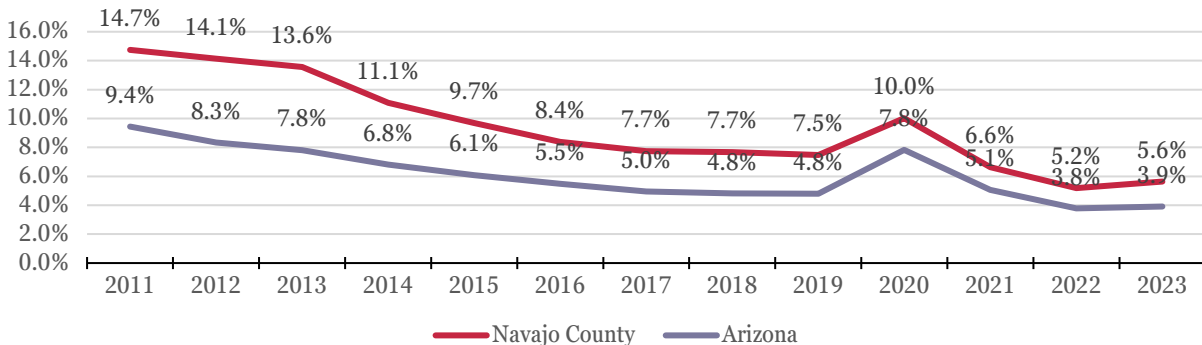
Winslow Unified School District 1	210	Education
Whiteriver Unified School District 20	200	Education
Ace Hardware	190	Retail
Community Counseling Centers	180	Health Care
Kayenta Unified School District 27	180	Education
Smith Bagley Inc	180	Retail
Best Western	170	Hospitality, Tourism, & Recreation
Cemex	170	Construction
Dennys	170	Consumer Services
Heber-Overgaard Unified School District	160	Education
Navajo County Community College District	160	Education
Pizza Hut	160	Consumer Services
Home Depot	150	Retail
Lowes	150	Retail
Pinon Unified District	150	Education
City of Show Low	140	Government, Social, & Advocacy
<i>Source: MAG AZ Employer Viewer</i>		

## Unemployment

Unemployment in Navajo County historically exceeds the statewide average. During the pandemic which started in March 2020, unemployment levels across the state and County rose rapidly and reached 10% in Navajo County. Since then, the unemployment rate declined to an average of 5.2% in 2022 before increasing slightly to 5.6% in 2023. As of February 2024, the unemployment rate for Navajo County was 5.6%.

## Navajo County & Arizona Unemployment Rates

Source: AZ OEO





# Navajo County 2050

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The labor force participation rate for Navajo County in 2022 is estimated at 45.7%, well below the Arizona average of 60.5%. The rates for the largest cities and towns in the County are also below the statewide average.

The labor force participation rate formula is comprised of the number of people ages 16 and older who are employed or actively seeking employment, divided by the total non-institutionalized, civilian working-age population. People in prisons, nursing homes, the military or mental health facilities are not counted in the labor force.

A couple of factors could be contributing to the low participation rate encountered in Navajo County. Typically, low labor force participation rates in the non-urban areas of Arizona are attributed to a large retirement population (such as in Prescott or Lake Havasu City) that is not working or searching for work. For instance, the average age in Prescott is 60.5 years and the labor force participation rate is estimated at 45%. However, Navajo County does not fit this pattern since the average age of residents is 38.7, about the same as the average for Arizona at 38.4 years.

The low Navajo County labor force participation rate could be attributed to:

- A high number of residents who are institutionalized. Navajo County appears to have a high percentage of its population that is institutionalized with some of that number due to the population of the Winslow prison.
- Because of the moderate age of County residents, one spouse in a family may elect to stop working and exit the labor force.
- The impact of the Native American population on labor force participation has not been evaluated but could impact the rate.

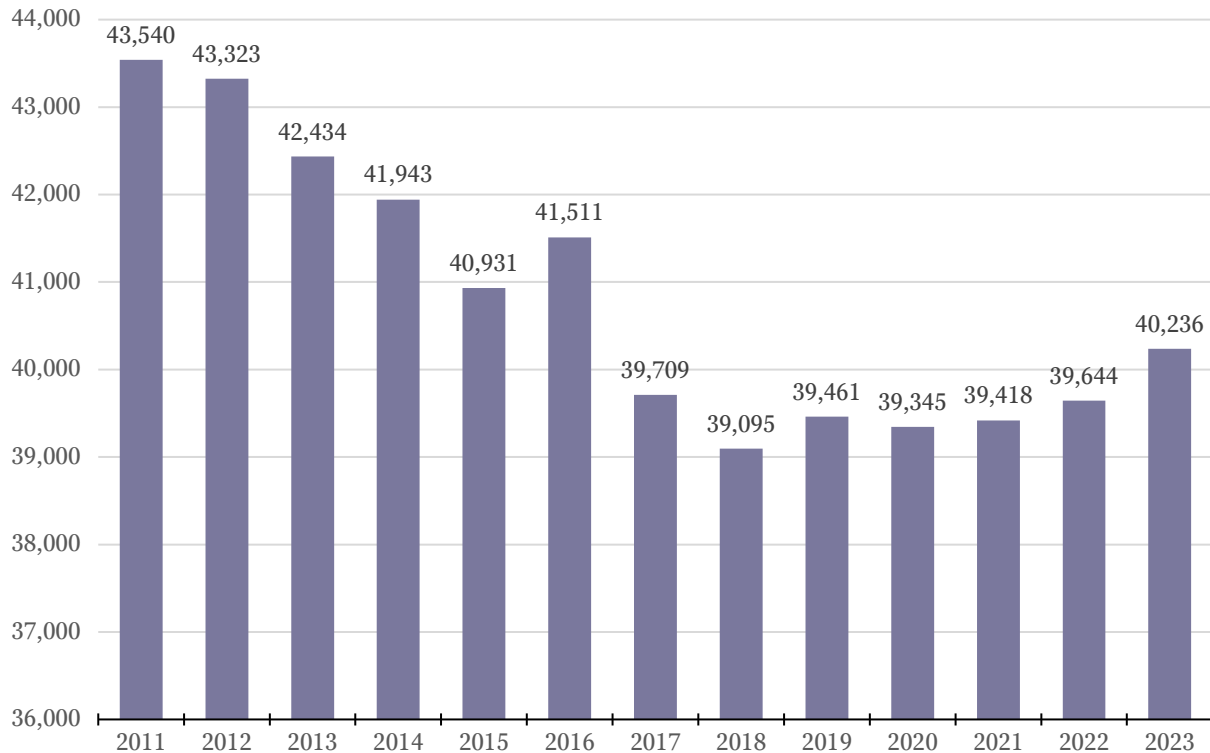
Labor Force Participation Rate 2022						
	Holbrook	Pinetop-Lakeside	Show Low	Winslow	Navajo County	Arizona
Population 16 years and over	2,476	693	1,780	1,464	67,955	5,764,417
<b>In labor force</b>	<b>44.5%</b>	<b>51.6%</b>	<b>50.2%</b>	<b>49.7%</b>	<b>45.7%</b>	<b>60.5%</b>
Civilian labor force	44.5%	51.6%	50.2%	49.7%	45.7%	60.1%
Employed	42.8%	49.1%	46.9%	44.9%	41.3%	56.9%
Unemployed	1.7%	2.5%	3.2%	4.8%	4.4%	3.2%
Armed Forces	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%
Not in labor force	55.5%	48.4%	49.8%	50.3%	54.3%	39.5%
<i>Source: ACS 5-Year Estimates</i>						

A low labor force participation rate creates some uncertainty as to where the County's service sector employment comes from to serve the local population as well as the seasonal population that expands during the summer months. For an economy to operate efficiently, it must have employees to provide the daily needs of its residents without forcing those employees to commute long distances to work.



The Navajo County labor force declined dramatically by more than 10% between 2011 and 2018 following the Great Recession. Since 2018, the labor force has grown by another 3% but is still below its high in 2011. As noted previously, the seasonal population that visits the County in the summer months could strain the local workforce to provide an adequate level of services.

### Civilian Labor Force 2011 - 2023 Navajo County Source: AZ OEO



#### Commuting Patterns

The U.S. Census Bureau produces a model that estimates commuting patterns of residents for counties and cities. The data is from 2021 and provides some indication of where residents live and work. The following table shows the inflow and outflow of all jobs for Navajo County.

Overall, the Census Bureau model estimates that 7,136 workers commute into Navajo County every day for work. Alternatively, 11,422 residents of the County or 40.1% of all employed persons commute out each day for work in other counties. The model suggests that 7.3% of these workers commute to metro Phoenix for work. The validity of this estimate has not been verified but could suggest there are not enough high paying jobs in the region to support certain occupations.

An estimated 70.5% of the people who are employed in Navajo County also live in the County. Most workers reside in the largest communities in the County such as Show Low, Winslow, and Holbrook. However, the model suggests more than 600 people are estimated to commute to Navajo County from Phoenix to work.



# Navajo County 2050

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Inflow/Outflow Job Counts 2021, Navajo County					
Where Persons Who Live in Navajo County Are Employed			Where Persons Who Are Employed in Navajo County Live		
<b>Workers Living in Navajo Co.</b>	28,516		Total Employed in Navajo Co.	24,230	
<b>Work &amp; Live in Navajo County</b>	17,094	59.9%	Work & Live in Navajo County	17,094	70.5%
<b>Commute out of Navajo Co.</b>	11,422	40.1%	Commute into Navajo Co.	7,136	29.5%
Place	Count	Share	Place	Count	Share
Show Low	4,058	14.2%	Show Low	2,835	11.7%
Phoenix	2,086	7.3%	Winslow	1,656	6.8%
Winslow	1,813	6.4%	Snowflake	1,425	5.9%
Whiteriver	1,729	6.1%	Holbrook	1,208	5.0%
Snowflake	1,577	5.5%	Pinetop-Lakeside	1,038	4.3%
Pinetop-Lakeside	1,501	5.3%	Lake of the Woods CDP	808	3.3%
Holbrook	1,415	5.0%	Whiteriver CDP	744	3.1%
Flagstaff	953	3.3%	Phoenix	674	2.8%
North Fork	834	2.9%	Linden CDP	539	2.2%
Taylor, AZ	699	2.5%	Kayenta CDP	524	2.2%
St. Michaels CDP	558	2.0%	Flagstaff	486	2.0%
Mesa	476	1.7%	Taylor	451	1.9%
Kayenta CDP	475	1.7%	Wagon Wheel CDP	447	1.8%
Tempe	463	1.6%	White Mountain Lake CDP	441	1.8%
Scottsdale	401	1.4%	Pinetop Country Club CDP	276	1.1%
Kykotsmobi Village CDP	387	1.4%	Mesa	254	1.0%
Tucson	288	1.0%	Tucson	222	0.9%
Lake of the Woods CDP	241	0.8%	Heber-Overgaard CDP	174	0.7%
Hondah CDP	240	0.8%	First Mesa CDP	166	0.7%
Page	231	0.8%	Rainbow City CDP	159	0.7%
Chandler	226	0.8%	Eagar	150	0.6%
Wagon Wheel CDP	225	0.8%	Cibecue CDP	130	0.5%
Farmington	219	0.8%	Canyon Day CDP	123	0.5%
Linden CDP	207	0.7%	Hotevilla-Bacavi CDP	123	0.5%
Gallup	198	0.7%	Joseph City CDP	123	0.5%
<b>All Other Locations</b>	7,016	24.6%	All Other Locations	9,054	37.4%

Source: U.S. Census Bureau's OnTheMap

## Labor costs

Labor costs can reflect both the skill levels of employees as well as the cost-of-living differences. Wages are also an important component in business expansion or relocation decisions. The following tables illustrate occupational wages across Navajo County compared to Arizona. Navajo County wages are, on average, 14% lower than the typical Arizona wage with exceptions for farming, fishing, and forestry occupations and healthcare support occupations.



# Navajo County 2050

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Average Wage by Occupation, Navajo County		
Occupation	Navajo County	Arizona
<b>Total, All Occupations</b>	<b>\$49,559</b>	<b>\$58,620</b>
Management Occupations	\$94,740	\$115,558
Business and Financial Operations Occupations	\$67,121	\$77,383
Computer and Mathematical Occupations	\$69,564	\$98,396
Architecture and Engineering Occupations	\$77,280	\$91,892
Life, Physical, and Social Science Occupations	\$50,992	\$71,852
Community and Social Service Occupations	\$45,451	\$50,856
Legal Occupations	\$87,586	\$103,887
Educational Instruction and Library Occupations	\$46,624	\$54,206
Arts, Design, Entertainment, Sports, and Media Occupations	\$45,716	\$59,139
Healthcare Practitioners and Technical Occupations	\$90,538	\$93,246
Healthcare Support Occupations	\$37,534	\$36,405
Protective Service Occupations	\$47,324	\$51,403
Food Preparation and Serving Related Occupations	\$34,558	\$37,262
Building and Grounds Cleaning and Maintenance Occupations	\$33,681	\$34,904
Personal Care and Service Occupations	\$35,115	\$38,080
Sales and Related Occupations	\$36,613	\$48,499
Office and Administrative Support Occupations	\$40,074	\$44,007
Farming, Fishing, and Forestry Occupations	\$35,511	\$34,877
Construction and Extraction Occupations	\$45,799	\$52,472
Installation, Maintenance, and Repair Occupations	\$45,478	\$53,090
Production Occupations	\$41,103	\$45,458
Transportation and Material Moving Occupations	\$39,789	\$43,406
<i>Source: AZ OEO</i>		



# Navajo County 2050

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## Employment Growth

Despite the forecasted decline in population for Navajo County over the next 36 years, the Arizona Office of Economic Opportunity suggests that between 2022 and 2032 employment will continue to grow in the County. More than 2,800 jobs are expected to be created, most of which are in the service sector. Education and Health services will continue to be demanded in the County (all growth is forecasted to occur in the health services sector) along with Leisure & Hospitality and Trade, Transportation, and Utilities employment.

Forecasted Employment Growth, Navajo County				
Industry	2022	2032	Change	Percent
<b>Total</b>	<b>30,948</b>	<b>33,764</b>	<b>2,816</b>	<b>9.1%</b>
Self Employed	2,071	2,080	9	0.4%
Goods Producing	2,889	3,260	371	12.8%
Service Providing	28,059	30,504	2,445	8.7%
Education and Health Services	7,548	8,575	1,027	13.6%
Leisure and Hospitality	4,379	4,920	541	12.4%
Trade Transportation and Utilities	5,369	5,897	528	9.8%
Professional and Business Services	1,527	1,841	314	20.6%
Manufacturing	432	574	142	32.9%
Natural Resources and Mining	921	1,048	127	13.8%
Construction	1,536	1,638	102	6.6%
Financial Activities	892	917	25	2.8%
Information	256	277	21	8.2%
Other Services (Except Government)	734	750	16	2.2%
Government	5,283	5,247	(36)	-0.7%
<i>Source: AZ OEO</i>				









## WATER/WASTEWATER RESOURCES & PUBLIC FACILITIES



This section covers water and sewer providers; anticipated future water availability; water conservation; wastewater processing; solid waste disposal; and public facilities. The chart below illustrates a quick snapshot of the Water/Wastewater Resources & Public Facilities section.

*By the Numbers, Source: ADEQ, Navajo County, 2024*

 <b>19</b> Water systems	 <b>2</b> Groundwater basins	 <b>6</b> Sheriff's offices
 <b>10</b> Fire stations	 <b>11</b> Waste facilities	 <b>68</b> Schools



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## Water and Sewer Providers

Water service is provided by a patchwork of 10 water companies and nine water improvement districts:

Water Service Providers	
Water Companies	Water Improvement Districts
High Country Pines Water Company	Heber Domestic Water Improvement District
Arizona Water Company	Clay Springs Water Improvement District
Buckskin Artists Community	Pinedale Domestic Water Improvement District
White Mountain Water Company	Timberland Acres Domestic Water Improvement District
Mountain Glen Water Service	Ponderosa Domestic Water Improvement District
Navajo Water Company	Sky Hi Domestic Water Improvement District
Watco Water Company	Misty Mountain Domestic Water Improvement District
Voyager at White Mountain Lakes Water Company	Porter Mountain Domestic Water Improvement District
A. Petersen Water Company	Joseph City Domestic Water Improvement District
Sun Valley Utilities	
<i>Source: Navajo County</i>	

The Navajo Water Company is the largest water company in the county, providing residential and commercial customers across Navajo County with potable water. The Navajo Water Company owns and operates three water systems that are registered with the Arizona Department of Environmental Quality (ADEQ). These water systems include the Summer Pines, Chapparal Pines, and Laguna Estates water systems. All three water systems are supplied with water from wells that draw from the Upper Salt watershed. Navajo County does not currently provide wastewater collection services.

## Legally and Physically Available Water by Type

Navajo County is located within two groundwater basins, including the Little Colorado River Plateau and the Salt River groundwater basins. Groundwater is the primary source for drinking water within the County. The Salt River groundwater basin is comprised of six smaller groundwater subbasins: Black River, White River, Carrizo Creek, Tonto Creek, Lower Salt River, and Upper Salt River. The primary water provider, Navajo Water Company, relies on the Upper Salt River groundwater subbasin as its water source.

## Anticipated Future Water Availability

As future growth and development occurs in Navajo County, special consideration must be taken to properly manage existing water resources and plan for future water resources well into the future. This includes proper land use planning to provide residential, industrial, and commercial customers with a safe and reliable supply of water for years to come.

## Water Conservation

Navajo County does not currently provide potable water to residential and commercial customers within the County. Navajo Water Company serves as the primary water provider for the County and provides recommendations to promote water conservation. This includes recommended practices related to lawn care, landscaping, reporting water leaks, and other miscellaneous opportunities to reduce water consumption and loss. Implementation of water conservation requirements within Navajo County provides an opportunity to implement policies and best practices that will reduce unnecessary water usage.





# Navajo County 2050

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Implementing requirements such as water-conserving fixtures, efficient irrigation systems, and xeriscape landscaping are a step in the right direction to help conserve the finite source of water.

## *Wastewater Processing*

Navajo County does not own or operate its own sanitary sewer collection system or wastewater treatment plant for domestic wastewater customers. The County requires all new developments to have a readily available sanitary sewer system in place prior to construction. Residential and commercial users in Navajo County largely rely on on-site septic systems to treat wastewater prior to discharge. The use of on-site septic systems and alternative systems allow for residential and commercial development in areas that do not have access to municipal or private wastewater collection systems. However, these systems can cause environmental issues if they are not properly maintained, including leakage of sewage and treatment chemicals into nearby groundwater sources.

## *Solid Waste Disposal*

Solid waste disposal is a necessity for growth in the region. As the region grows, so does the need for solid waste disposal and having the capacity and means to transport that waste can present a challenge. For residents of unincorporated Navajo County, they are in charge of disposing of their own waste. There is currently a single landfill site, Painted Desert Landfill, located in Joseph City, near I-40 and Porter Road. There are ten waste transfer facilities in the study area, with only five located in unincorporated areas. The five facilities are the Lone Pine Transfer Station, Heber-Overgaard Transfer Station, Joseph City Waste Transfer Station, Wagon Wheel Rolloffs, and the Town of Pinetop-Lakeside Transfer Station. **Figure 14** shows landfills and waste transfer stations.

## *Sherriff's Office*

The Navajo County Sheriff's Office (NCSO) offers a range of services to the unincorporated areas of Navajo County, including patrol, communications, criminal investigations, evidence management, administration, adult detention, training, and search and rescue operations. The NCSO operates out of six stations, with its primary offices being situated in Show Low and Holbrook. **Figure 14** highlights the main NCSO station locations across the county.

## *Fire Protection*

There are 23 fire stations within the County boundary, 10 of which are located outside of incorporated jurisdictions and Tribal lands. Fire stations in the unincorporated County are served by Clay Springs Pinedale Fire Department, Heber-Overgaard Fire District, Joseph City Fire District, Linden Fire Department, Pinetop Dire Department, Sun Valley Fire and Rescue, Timber Mesa Fire, and Medical Station, and White Mountain Lake Fire Department. **Figure 14** shows the locations of fire stations across the County. Of the 23 stations, 10 of are located near SR 260 south of Show Low or on SR 77 between Snowflake and Show Low.

## *Educational Facilities*

There are 68 educational facilities spread across 11 school districts in Navajo County. There are 29 elementary schools, 14 middle schools, and 20 high schools, along with five community schools (K-8 or K-12). School districts within Navajo County include Pinon Unified, Heber-Overgaard Unified, Cedar Unified, Holbrook Unified, Joseph City Unified, Kayenta Unified, Blue Ridge Unified, Show Low Unified, Snowflake Unified, Whiteriver Unified, and Winslow Unified. **Figure 14** shows the locations of the schools

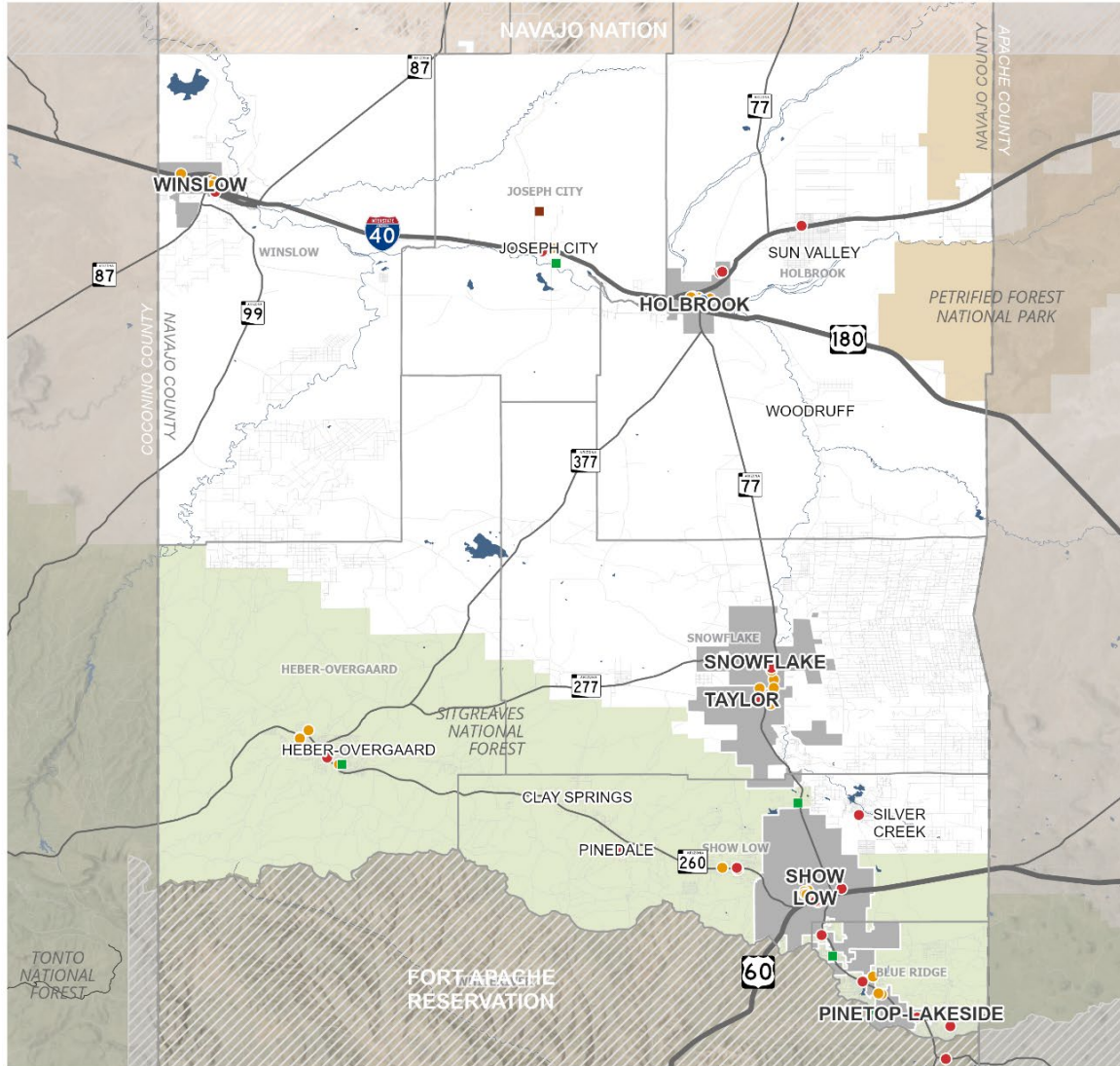


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within Navajo County. The average enrollment for elementary, middle, and high schools are 270, 344, and 324, respectively.

Figure 13. Navajo County Public Facilities Map



## PUBLIC FACILITIES

- |  |  |                |
|--|--|----------------|
| <span style="color: green;">■</span> Waste Transfer Facilities | Navajo County Boundary                             | Water Bodies   |
| <span style="color: brown;">■</span> Painted Desert Landfill   | Cities and Towns within Navajo County Jurisdiction | Limited Access |
| <span style="color: red;">●</span> Fire Station                | Native Lands                                       | Highway        |
| <span style="color: blue;">●</span> Sheriff's Office           | Petrified Forest National Park                     | Major Road     |
| <span style="color: orange;">●</span> Schools                  | National Forest                                    | Local Road     |
| School District Boundary                                       | Rivers and Streams                                 | Minor Road     |
|  |  | Ramp           |

0 8 15 Miles











## ENVIRONMENTAL & ENERGY RESOURCES



Navajo National Monument, Jarek Tuszyński

This section begins with a concise overview of the County's physiography, climate, and world-famous natural attractions. The next component illustrates the designated eco regions and unique vegetative cover of the County along a description of some of its wildlife inhabitants as well as important State designated conservation and corridor areas. Lastly, the section concludes with three potential environmentally impacting hazards as well as a discussion on the transition of the County's fossil fuel industry to its abundant renewable opportunities.

*By the Numbers, Source: National Park Service and National Oceanic and Atmospheric Administration, 2023*

 <b>1</b> National Forest	 <b>8</b> Threatened and endangered species	 <b>17+</b> Hiking trails
 <b>16+</b> Lakes	 <b>15"</b> Annual rainfall on average	 <b>22"</b> Annual snowfall on average



# Navajo County 2050

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## *Physiography and Climate*

Navajo County contains a wide-ranging variety of physiography and terrain, primarily divided by the Mogollon Rim. The Winslow region marks the lowest elevation from 4,850 feet, and the highest elevation is up to 7,575 feet at the Mogollon Rim. North of the rim, there are vast stretches of desert, speckled with flat-topped mesas, lonely buttes, small plateaus, and valleys. This region is adorned primarily by short grasses, sagebrush, juniper, and pinon. Below the rim, the terrain is mainly mountainous, with dense forests of pinon-juniper and ponderosa pine trees. The southern portion of the County has many lakes, rivers, and streams. The Little Colorado River, flowing from the west to the northwest of the County, is a key geographic feature, supporting a number of native wildlife and plant species.



*Petrified Forest National Park, Alexander Hatley*



*Hopi Buttes*

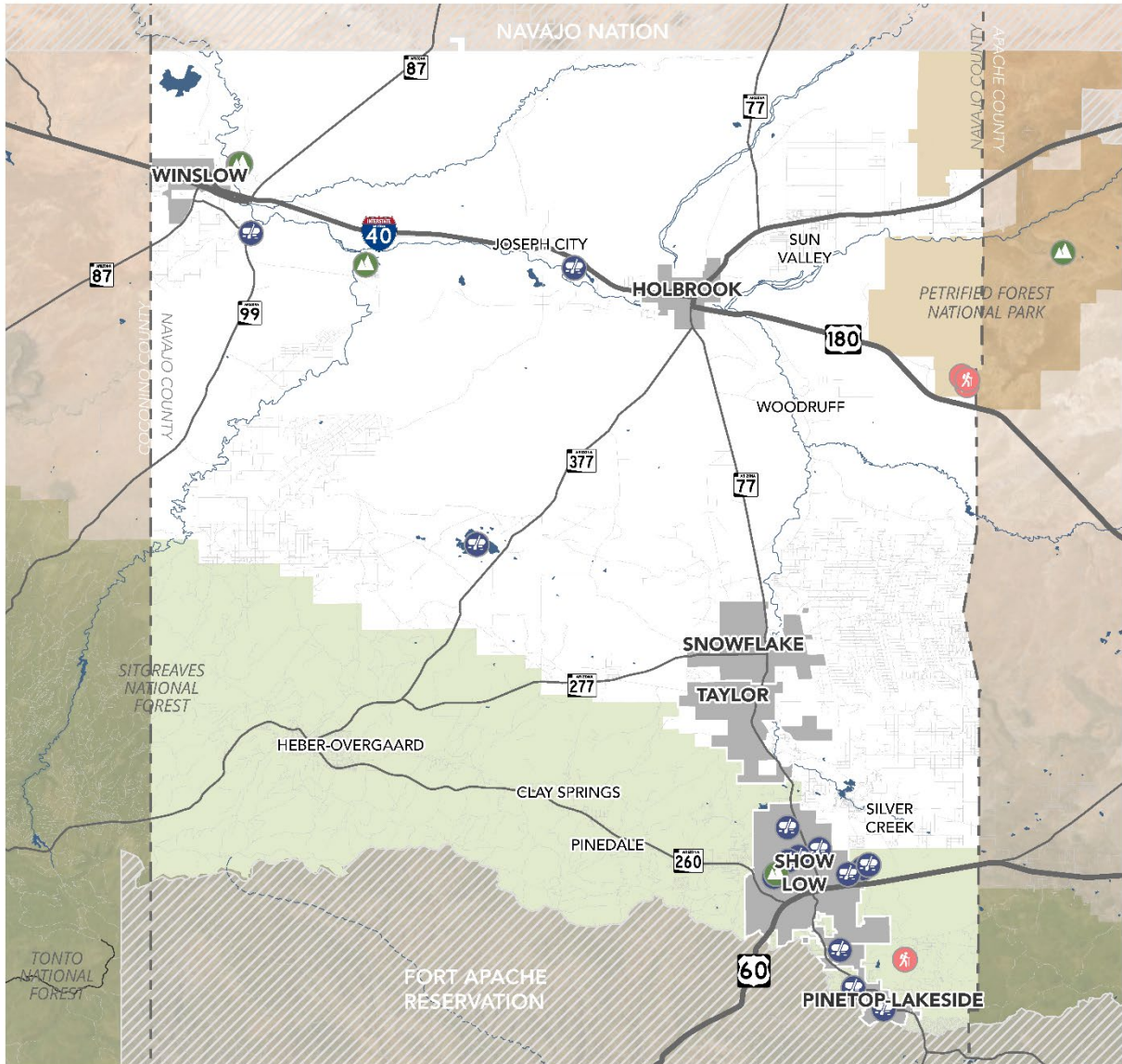
This region experiences a semi-arid or sub-humid climate with an abundance of sunshine and temperatures ranging between 37.8 °F and 67.2 °F in 2023. Precipitation happens primarily between July and September, monsoon season. In 2023 the County received just over 15 inches of rainfall in total throughout the year. The County also experiences scattered days of snowfall of 5 inches or less between the months of October and May, averaging a total of 22 inches of snow annually. The region is famous for several majestic destinations, including the Painted Desert, the White Mountains, the Petrified Forest, Monument Valley, the Sitgreaves National Forest, Route 66, and more.

## *Natural Attractions*

**Figure 15** illustrates the variety and distribution of local and regional land attractions, lakes, national forests, and hiking trails within and surrounding the Focus Area. **Figure 16** highlights some of the major natural attractions across the County. Attractions include national parks, national monuments, and other famous landscapes unique to Navajo County. Major attractions include the following:

- Petrified Forest National Park
- Navajo National Monument
- Monument Valley
- Canyon de Chelly National Monument
- Painted Desert
- Sitgreaves National Fores

Figure 14: Local/Regional Attractions Map



**LOCAL/REGIONAL NATURAL ATTRACTIONS**



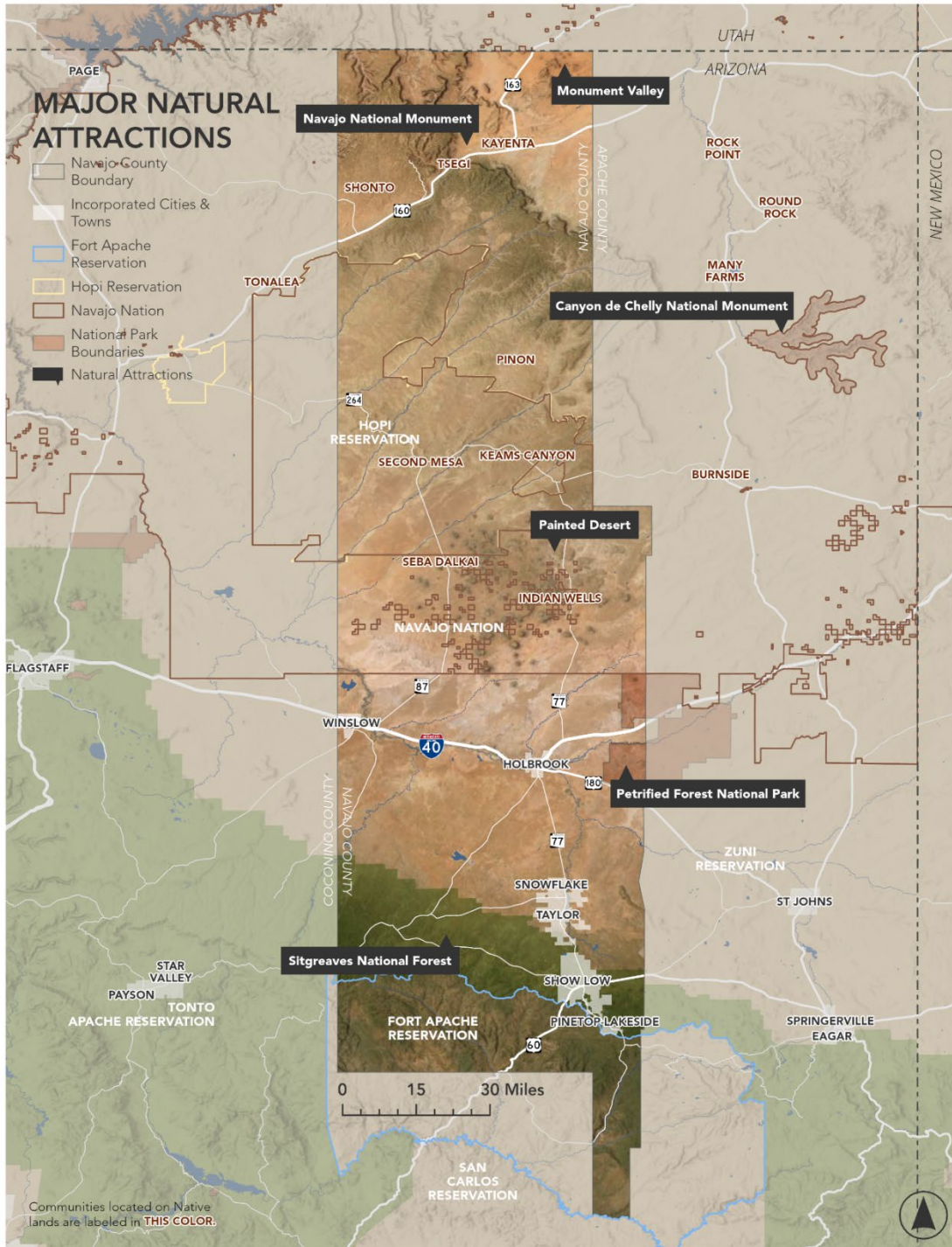
- |  |                  |
|--|------------------|
| Navajo County Boundary                             | National Forest  |
| Cities and Towns within Navajo County Jurisdiction | Water Bodies     |
| Native Lands                                       | Hiking Trails    |
| Petrified Forest National Park                     | Lakes            |
|  | Land Attractions |



# Navajo County 2050

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Figure 16: Major Natural Attractions Map





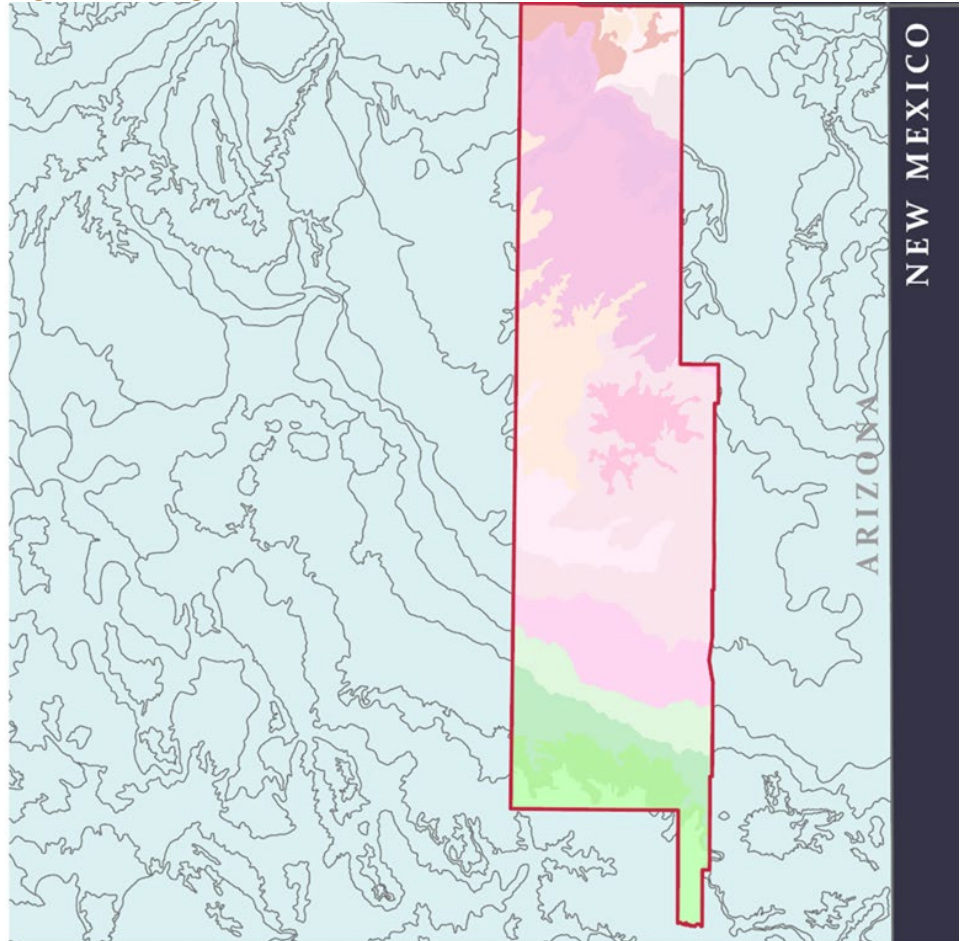
## Ecoregions

The Environmental Planning Agency (EPA) has established areas of similar ecosystems in a multilevel hierarchy called “Ecoregions”. The ecoregion framework is derived from Omernik (1987) and from mapping done in collaboration with the EPA regional offices, and other Federal and State stakeholders. These regions are critical for ecosystem management strategies across stakeholder groups responsible for different types of resources within the same ecoregions.

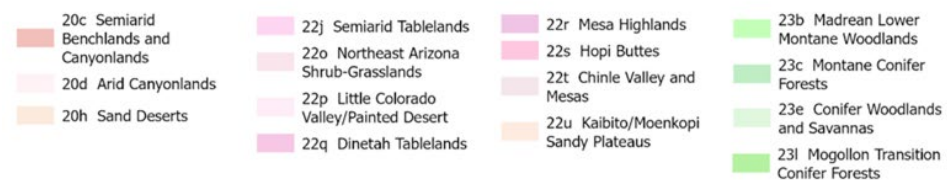
They are identified by analyzing the patterns and composition of biotic and abiotic phenomena that affect or reflect differences in ecosystem quality and integrity (Omernik 1987, 1995). These phenomena include geology, landforms, soils, vegetation, climate, land use, wildlife, and hydrology. The relative importance of each characteristic varies from one ecological region to another regardless of the hierarchical level. A Roman numeral classification scheme has been adopted for different hierarchical levels of ecoregions, ranging from general regions to more detailed: Level I - 12 ecoregions in the continental U.S., Level II - 25 ecoregions in the continental U.S., Level III - 105 ecoregions in the continental U.S., and Level IV - 967 ecoregions in the conterminous U.S.

As shown in **Figure 17**, there are a total of fifteen unique Level IV ecoregions in Navajo County. In the north of the County, ecoregions of the Navajo and Hopi tribal lands are part of the Arizona/New Mexico and Colorado Plateaus. In the south, ecoregions of the Sitgreaves Forest and White Mountain Apache tribal land are part of the Arizona/New Mexico, or Gila, mountains. The non-tribal focus area of the County is a mix of these two higher-class ecoregions as mountains, plateaus, and cold desert.

Figure 17: Ecoregions



EPA Level IV Ecoregions





# Navajo County 2050

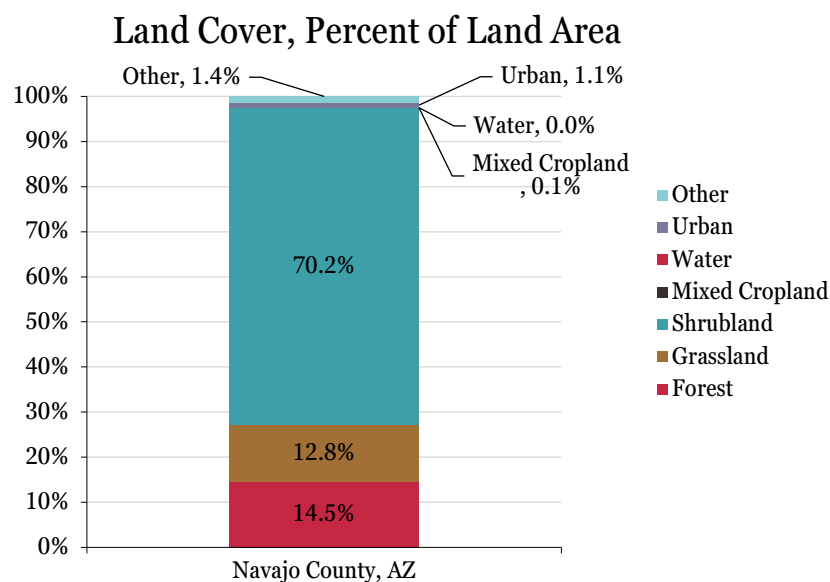
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## Vegetation

Vegetative land cover data is useful for understanding several factors, including economic activities and opportunities, as well as natural resources and capacity, including water storage and wildfire risk. Data provided by the National Land Cover Database (NLCD) classifies Landsat satellite data and uses a multiple-class land cover scheme. The largest percentage of vegetative land cover in Navajo County is Shrubland at 72% followed by Grassland at 13% and Forest at 15%.

These classes were summarized into seven classes as follows:

- **Forest:** An aggregate of the following NLCD classes: Evergreen Forest, Deciduous Forest, and Mixed Forest.
- **Grassland:** An aggregate of the following NLCD classes: Grasslands, Sedge, Lichens, and Moss.
- **Shrubland:** An aggregate of the following NLCD classes: Dwarf Scrub and Shrub/Scrub.
- **Mixed Cropland:** An aggregate of the following NLCD classes: Pasture/Hay and Cultivated Crops.
- **Water:** The same in the original NLCD Open Water classification.
- **Urban:** An aggregate of the four Developed classes within NLCD.
- **Other:** An aggregate of the following NLCD classes: Barren Land, Perennial Ice/Snow, and the two Wetlands classifications.



Source: Dewitz, J., and U.S. Geological Survey, 2021, National Land Cover Database (NLCD) 2019 Products (ver. 2.0, June 2021): U.S. Geological Survey data release, <https://doi.org/10.5066/P9KZCM54>.





## Wildlife

Navajo County is home to numerous native species, including many unique bird and fish species.



The **Northern Leopard Frog**, pictured left, is a Species of Greatest Conservation Need that could be listed as threatened by 2050. It occurs in the mountainous area north of the Mogollon Rim and inhabits a range of aquatic habitats, including pools, livestock tanks, lakes, reservoirs, streams, and rivers. It prefers habitats with emergent wetland vegetation and is often restricted to isolated waters and the upper portions of watersheds that are free from non-native predators.

Source: *Northern Leopard Frog, Animalia.bio*

The **Little Colorado Spinedace** is a small, silvery minnow that is endemic to the Little Colorado River and its headwater tributaries. Spinedace were once common throughout the Little Colorado River Basin but have experienced a decline in numbers as well as in their range since the early 1900's, ultimately leading to their current listed status as threatened under The Endangered Species Act. They still occupy several streams they were historically known to inhabit including Chevelon Creek, East Clear Creek, and the Little Colorado River including Nutrioso and Rudd Creeks, but are thought to have been extirpated from Silver Creek, where surveys have not detected the species in over 20 years.

The **Mexican Spotted Owl** is a subspecies of spotted owl that lives in the forested mountains and canyonlands of the southwestern United States and Mexico. Known populations of this species occur within the Apache-Sitgreaves National Forests in the southern portion of the focus area in mature pine-oak forest habitats with steep slopes and rocky cliffs.

The **Mexican Wolf** was reintroduced in the White Mountains of eastern Arizona and has been documented ranging through the forested portions of Navajo County. Its habitat includes



Source: *Mexican Spotted Owl, Tamara Srader*  
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mid- to high-elevation woodlands, including oak, pinyon pine, juniper, ponderosa pine and mixed conifer forests. It has been listed under the 10J Rule of the Endangered Species Act. This designation provides management flexibility than a fully protected endangered status and is not intended to minimize impact to the land uses.

The **Monarch Butterfly** is currently a candidate for listing under the Endangered Species Act. It exhibits long-distance migration and overwinters as adults at forested locations in Mexico and California. It may take as many as five generations for monarchs to fly to their northern extents, venturing as far as southern Canada, before returning and flying back south for the winter. Adults feed on nectar from a wide variety of flowers and their reproduction is dependent on the presence of milkweeds, which are the sole food source for its larvae.

The **Southwestern Willow Flycatcher** is a small songbird that winters in Central America and migrates north to breed in the United States during the summer. Its historical breeding habitat consisted of dense riparian vegetation such as mature cottonwood-willow riparian forests and willow thickets along rivers and streams, but it now also breeds in dense stands of tamarisk that have replaced much of the native riparian habitats.

The western population of the **Yellow-billed Cuckoo** that is federally listed as a threatened “distinct population segment” migrates north from Central and South America to breed in the western United States. In Arizona, yellow-billed cuckoos breed in lowland riparian woodlands that have a multi-layered canopy with a variable combination of Fremont cottonwood, willow, mesquite, velvet ash, Arizona walnut, and tamarisk.

The **Golden Eagle** is a very large raptor with the fifth largest wingspan among eagle species, exceeding seven feet. It occurs widely across the county. While it is not listed as endangered or threatened, it is a Species of Greatest Conservation Need for the Arizona Game and Fish Department. In 1962, the Bald Eagle Protection Act was amended to include golden eagles (*Aquila chrysaetos*), becoming the Bald and Golden Eagle Protection Act (Eagle Act).

The **American Pronghorn**, resembling the antelope and filling a similar ecological niche, occurs widely across the unincorporated county land area north of the rim. The species currently has an unusually low birth rates or high death rates combined with small or declining population size. This species, along with elk, is economically relevant to hunting and important to recreational business, however, Pronghorn populations are impacted by human development, particularly fencing, which reduce habitat and constrict migration.

**Critical Habitat** that has been designated by the US Fish and Wildlife Service for the conservation of threatened and endangered species receives special legal protection under the Endangered Species Act. There is designated critical habitat for the Mexican spotted owl on the Apache-Sitgreaves National Forests in the southern portion of the planning area and designated critical habitat for the Little Colorado Spinedace along East Clear Creek, Chevelon Creek, and Nutrioso Creek. Critical habitat designations do not affect activities by private landowners if there is no federal “nexus”— that is, no federal funding or permits are required to carry out the activity. The maps and GIS data in this report illustrate approximate locations of wildlife movements on the landscape and should be regarded as the starting point for further consultation with AZGFD and other wildlife and land management agencies, preferably during the early stages of project planning.

### *Wildlife Conservation Opportunity Areas*

According to the Arizona Game and Fish Department, “Conservation Opportunity Areas (COAs) represent specific areas on the landscape where actions will most likely lead to substantial improvements for wildlife and their habitats.” While the COAs provide voluntary guidance, they are areas identified to maximize conservation effort efficacy. COAs include two complimentary categories, terrestrial and aquatic. COAs identify areas of conservation potential and value. Terrestrial COAs were identified based on species and habitat expertise, as well as wildlife and spatial data. Aquatic COAs are focused strictly on aquatic resources, mostly native fish species. There are a total of 308,655 acres of Terrestrial COAs and 63,533 acres of Aquatic COAs shown in **Figure 18**. Each COA has listed conservation goals, primary threats, potential conservation actions, habitats, strategy species, protected areas and other areas of conservation value, plans, and potential partners listed on the Arizona Wildlife Conservation Strategy website. Layers from the COAs and connectivity zones are available for viewing on the Online Environmental Review tool. No interpretation of the data layers be made without consultation of the Arizona Game & Fish Department.

### *Wildlife Connectivity Zones*

Arizona’s wildlife is also important to the natural environment, and they are forced to adapt and either relocate or circumnavigate around growing infrastructure, increasing the potential for animal-human interaction. The Arizona Game and Fish Department (AZGFD) works with stakeholders and partners to understand the patterns of movement and occupation of wildlife to increase connectivity for wildlife in a planned manner and reduce the frequency of negative interactions, allowing animals to move to the resources they need. Preventing habitat loss and fragmentation is achieved through the preservation of unfragmented habitat. AZGF provides guidelines reviewing options for means of construction that reduce negative interactions in consultation with staff. This includes corridors creating for animals to move between blocks of habitat when construction is unavoidable. These corridors provide for movement for vital resources, migration, and re-colonization. Planning and coordination of corridors also benefits public safety, reduced roadway collisions, and rural and urban open space planning and acquisition for recreation.

Arizona's wildlife faces challenges due to expanding infrastructure, leading to increased encounters between wildlife and humans. AZGF collaborates with various stakeholders to understand wildlife movement patterns and habitats, promoting planned connectivity to mitigate negative interactions. Preserving unfragmented habitat is crucial, with the department offering development guidelines to minimize wildlife disturbance. Corridors are established to facilitate animal movement between habitat blocks, ensuring access to resources and enabling migration and re-colonization. This coordinated approach not only benefits wildlife but also enhances public safety, reduces road accidents, and promotes recreational opportunities in both rural and urban areas. There are approximately 533,371 acres of Important Connectivity Zones in the focus area (1,277,321 acres County-wide) shown in **Figure 19**.

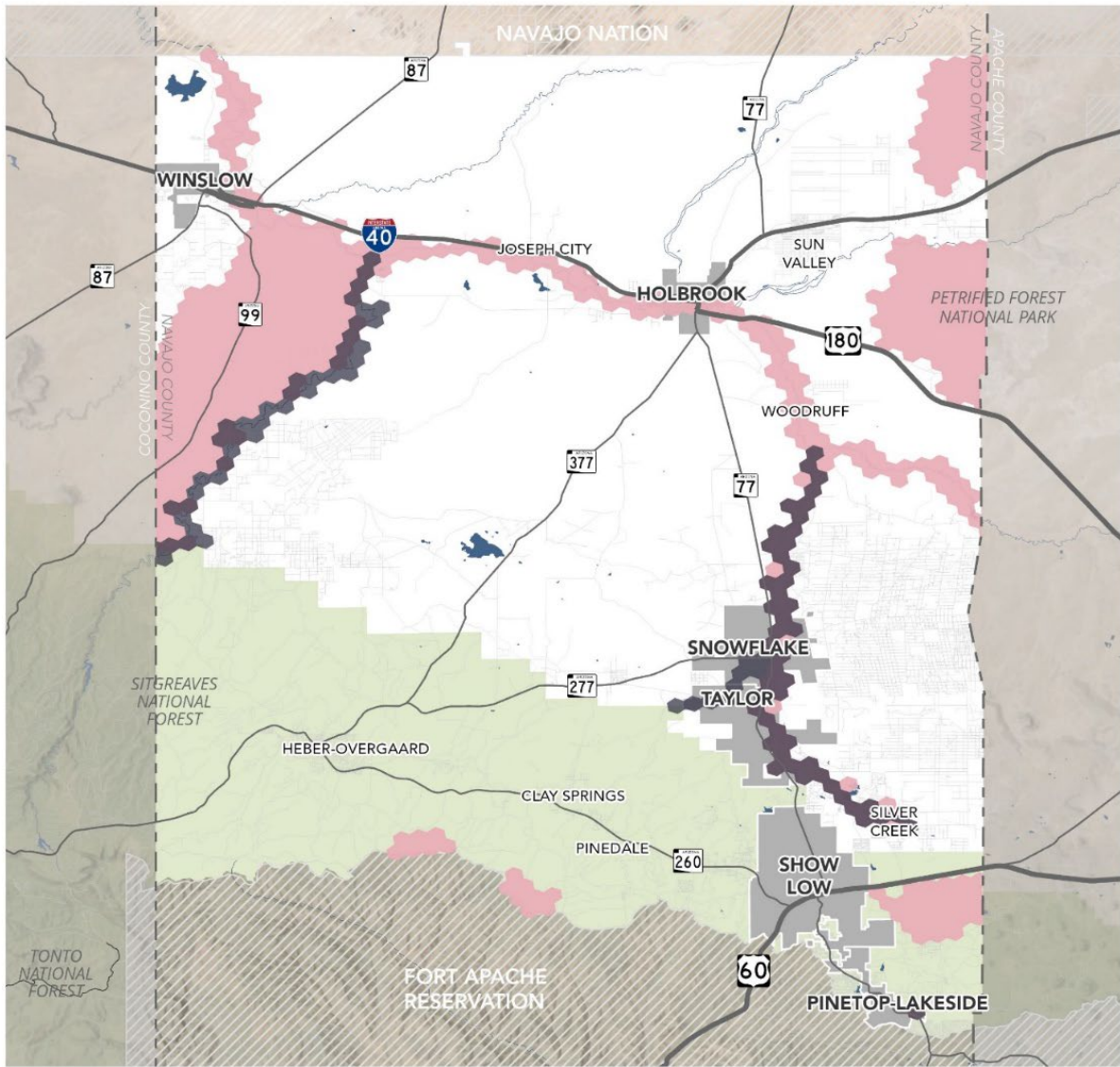
### *Wildlife Stakeholder Corridors*

AZGFD and The Arizona Wildlife Linkages Workgroup held stakeholder workshops to develop information on wildlife movement corridors and areas of habitat connectivity so that planners and developers could incorporate information about wildlife linkages and strategies for their conservation into land-use decisions. Figure 20 depicts this Wildlife Stakeholder Corridors. The information that was developed during the stakeholder meetings was then summarized in The Apache and Navajo Counties Wildlife Connectivity Assessment: Report on Stakeholder Input (AGFD 2013). The report does not represent an exhaustive mapping of all important wildlife linkages across Apache and Navajo Counties but should instead be considered an initial assessment of wildlife movement patterns to be supplemented in the future by further analysis and refinement that includes additional expert input, GIS-based linkage modeling, and research studies of wildlife movement patterns. In order to distinguish between different types of wildlife movement, the wildlife linkages were broken down into several categories:

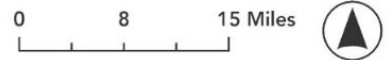
- Landscape movement areas refer to a type of wildlife linkage where animals move between habitat blocks.
- Animals may also move within a habitat block rather than through a well-defined corridor, a type of wildlife linkage we identify as a diffuse movement area.
- Riparian movement areas refer to a type of wildlife linkage where animals move primarily through riparian habitat, including desert washes classified as xeroriparian habitat.
- Often, wildlife use crossings, such as culverts, underpasses, or overpasses, to move between habitat blocks or through riparian habitat where barriers exist. These are referred to in this report as potential or important crossing areas.

Additional information regarding species of concern and current threats/barriers to movement are included in the report. As noted by AZGFD, “Wildlife linkage planning should include conservation of wildlife linkages and the habitat blocks they connect, and, in most cases, require the implementation of multiple strategies such as land acquisition, community planning for developments, open space conservation, and habitat restoration. Installation of roadway mitigation features including wildlife crossing structures and fencing to funnel wildlife to crossing structures are important considerations that are best incorporated into the early planning stages of transportation and development projects.”

Figure 18: Conservation Opportunity Areas

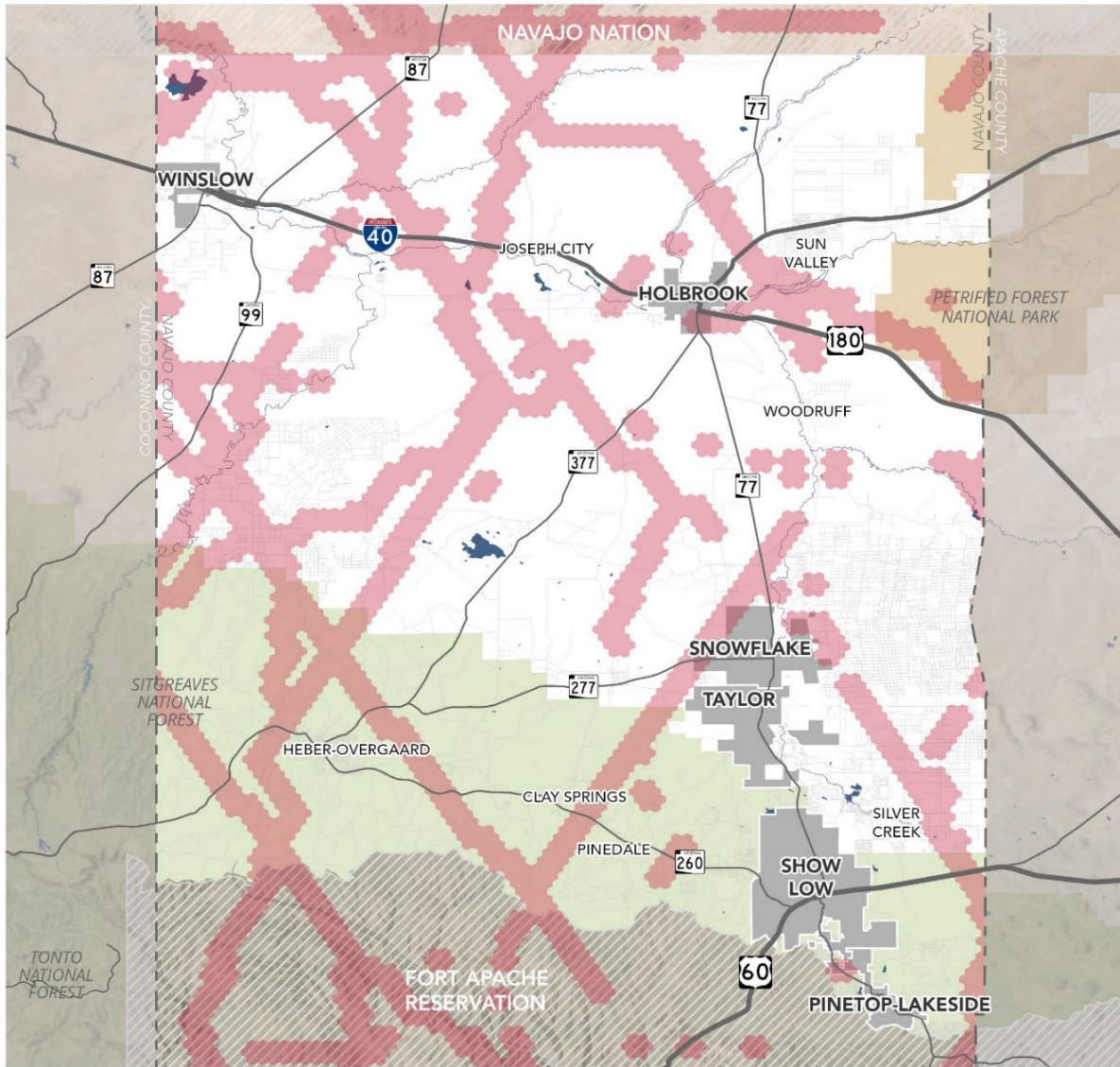


### CONSERVATION OPPORTUNITY AREAS

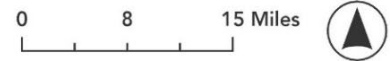


- |  |  |
|--|--|
| Navajo County Boundary                             | Rivers and Streams                         |
| Cities and Towns within Navajo County Jurisdiction | Aquatic Conservation Opportunity Areas     |
| Native Lands                                       | Terrestrial Conservation Opportunity Areas |
| National Forest                                    |  |

Figure 19: Wildlife Connectivity Zones

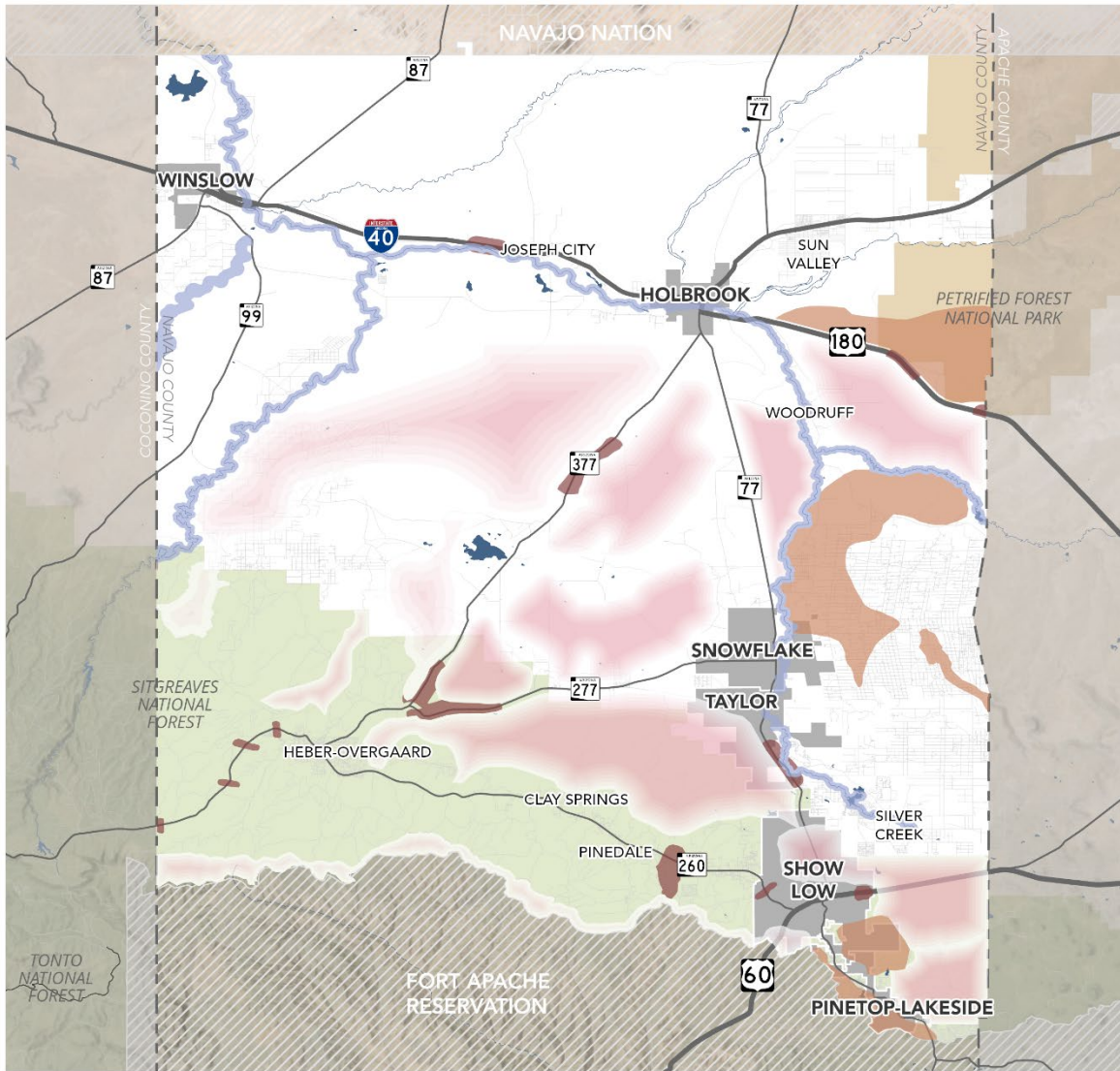


### WILDLIFE CONNECTIVITY ZONES

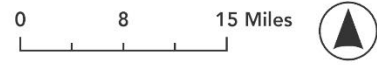


- |  |                                       |
|--|---------------------------------------|
| Navajo County Boundary                             | National Forest                       |
| Cities and Towns within Navajo County Jurisdiction | Water Bodies                          |
| Native Lands                                       | Important Wildlife Connectivity Zones |
| Petrified Forest National Park                     | Rivers and Streams                    |

Figure 20: Wildlife Stakeholder Corridors



### WILDLIFE STAKEHOLDER CORRIDORS



- |  |                                       |  |
|--|---------------------------------------|--|
| Navajo County Boundary                             | National Forest                       | Wildlife Movement Area - Diffuse       |
| Cities and Towns within Navajo County Jurisdiction | Rivers and Streams                    | Wildlife Movement Area - Landscape     |
| Native Lands                                       | Water Bodies                          | Wildlife Movement Area - Riparian/Wash |
| Petrified Forest National Park                     | <b>Wildlife Stakeholder Corridors</b> | Wildlife Crossing Area                 |

### Floodways

The floodways map in **Figure 21** outlines crucial channels that serve as natural pathways for floodwaters. These pathways, vital for efficiently guiding floodwaters away from populated areas, must remain

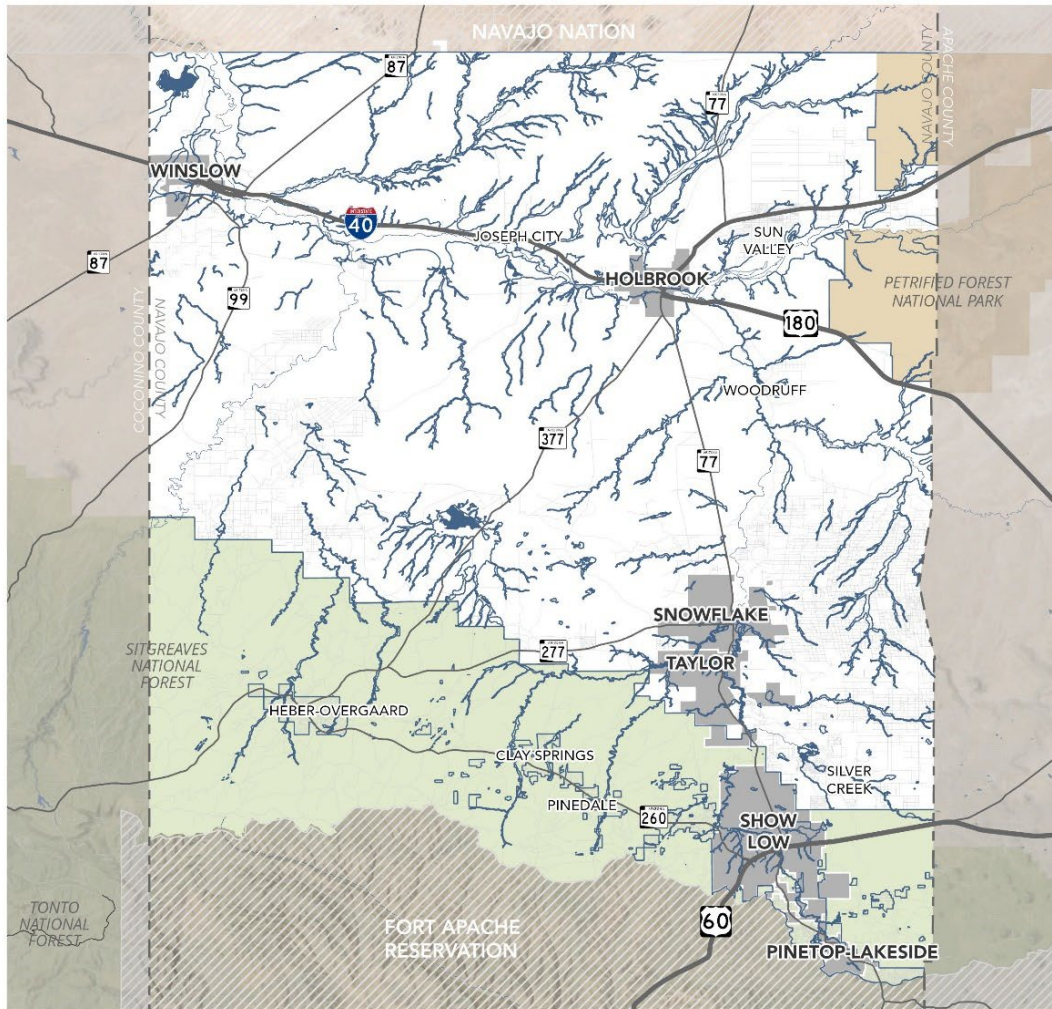


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unobstructed. Buildings, structures, or debris blocking these channels can cause flooding to worsen upstream. These floodways are prominently snaking around bodies of water and following the natural valleys throughout the County. This alignment with the landscape highlights the importance of recognizing and preserving these natural conduits to minimize the risk of flooding in the area.

Figure 21: Navajo County Floodways Map



## NAVAJO COUNTY FLOODWAYS

- Navajo County Boundary
- Cities and Towns within Navajo County Jurisdiction
- Native Lands
- Petrified Forest National Park
- National Forest
- Rivers and Streams
- Water Bodies
- Flood Zone Boundaries

0 8 15 Miles



### Military Training Routes and Operation Areas

There are several Department of Defense (DoD) related Military Training Routes (MTRs) and Military Operations Areas (MOAs) that traverse the airspace above Navajo County. The Arizona State Land Navajo County Existing Conditions Report | 72





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Department is the repository of these maps. Some of these routes and areas can have low level military operations occurring as low as 100 feet above ground level (AGL). It is important for developers and future residents to be aware that there are military operations being conducted overhead. Future renewable energy development actions within the unincorporated County should be referred to several agencies for review and comment.

Please ensure all renewable energy projects, such as wind and solar, are submitted for an informal review through the DoD Siting Clearinghouse for Energy, Installations, and Environment. The project narrative should be sent to: [osd.dod-siting-clearinghouse@mail.mil](mailto:osd.dod-siting-clearinghouse@mail.mil). Additionally, it should be noted that certain foreign investments and real estate transactions underneath MTRs and MOAs may be subject to review by the Committee on Foreign Investment in the United States (CFIUS) to determine the effect of such transactions on the national security of the United States. The CFIUS regulations, Foreign Investment Risk Review Modernization Act of 2018 (FIRRMA) provisions, and related resources can be found on the Department of the Treasury's website: <http://www.treasury.gov/cfius>. For development reviews, please courtesy copy: [56fw.cit.communityinitiative@us.af.mil](mailto:56fw.cit.communityinitiative@us.af.mil).

## *Wildfire Risk*

The two largest portions of land by ownership category are tribal at 66% and private at 18%. All homes within the County are exposed to wildfire—sixty four percent of homes are exposed to wildfire from direct sources, such as adjacent flammable vegetation, while thirty-six percent are exposed to wildfire from indirect sources, such as embers or home-to-home ignition. Wildfire exposure is the probability of wildfire occurring and the energy released by a wildfire (heat intensity) within a community, and any community, or part thereof, that is located that wildfire probability is greater than zero is exposed to the risk of wildfire.

Navajo County's relative risk to wildfires compared to the rest of the State is greater. Data from the USDA Forest Service, Wildfire Risk to Communities reports populated areas in Navajo County, AZ have, on average, greater risk than fifty-nine percent of counties in the State. Compared to the country, that risk is significantly higher. Populated areas in Navajo County, AZ have greater risk than eighty-nine percent of counties in the nation.



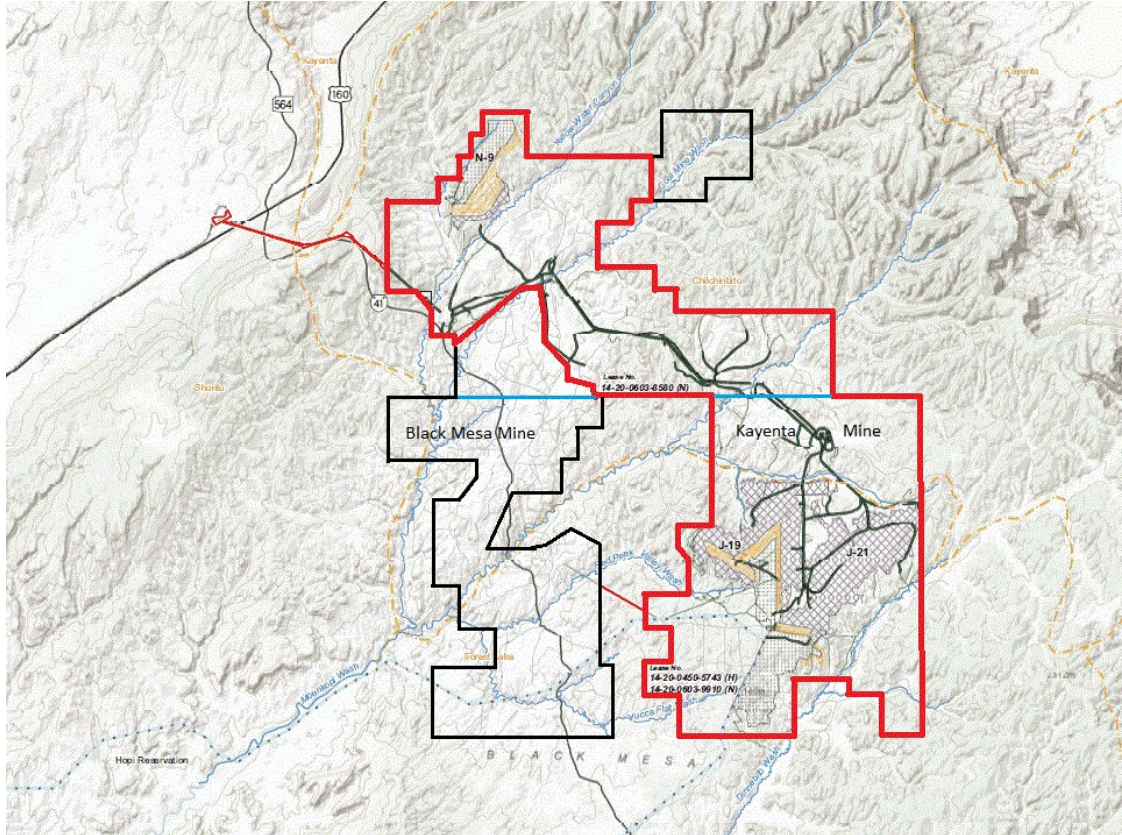
Native American populations on tribal land with higher wildfire hazard potential, morbidity rates, and manufactured housing are particularly vulnerable to wildfire disasters. Health morbidities, like asthma, can be exacerbated by wildfire smoke and environmental stress, but also have disparate outcomes based on race and income, determining access to aid and resources in the event of wildfires.



## Energy Resources

Peabody Western Coal Company was a subsidiary of Peabody Energy operating the now permanently closed Kayenta surface coal mine shown on **Figure 22** from 1973 to 2019. Four hundred acres were mined per year, formerly producing eight million tons of coal annually.

Figure 22: Kayenta Mine Map



Cholla Power Plant, a coal-fired plant owned and operated by Arizona Public Service (APS), is scheduled to close down by April 2025. It is one of several power plants closed early by APS. The closure will leave the Joseph City Unified School District with a funding shortfall of more than \$20 million in the decade after the plant shuts down. APS has proposed a coal community transition (CCT) package of nearly \$150 million in assistance to the Navajo Nation, Hopi and Navajo County, but the package requires approval from the Arizona Corporation Commission. Thus far, only a fraction of the CCT funding has been approved by the Commission.



The closure of the mine will have a significant impact on the County's economy in eliminating jobs and reducing revenues. However, Federal Section 48C tax credits are available for transitional energy projects,



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and Navajo County has been identified as a priority for special funding by the Interagency Working Group (IWG) on Coal and Power Plant Communities and Economic Revitalization.

## *Priority Energy Community*

The Navajo County focus area sits squarely within the area designated as an “energy community”, while other portions of the County are still eligible for the 48C tax credit.

Advanced Energy Project Credit – 26 U.S. Code § 48C provides a tax credit for investments in advanced energy projects, as defined in 26 USC § 48C(c)(1). Direct pay eligibility applies to counties and tribal governments, and rural electricity co-ops. Eligible projects are those that: 1) re-equips, expands, or establishes an industrial or manufacturing facility for the production or recycling of a range of clean energy equipment and vehicles; 2) re-equips an industrial or manufacturing facility with equipment designed to reduce greenhouse gas emissions by at least 20 percent; or 3) re-equips, expands, or establishes an industrial facility for the processing, refining, or recycling of critical materials.

This map in **Figure 23** displays County census tracts that are considered “energy communities” for the purposes of the 48C tax credit. There are two designations:

1. Red: is for those tracts that are both eligible for 48C credits and are located in a census tract that satisfies the relevant requirements of an energy community.
2. Gray: is for tracts that satisfy only the first designation of eligible for 48C credits but do not satisfy the “energy community” requirements.

While Congress has provided funding for communities to respond to regional economic challenges associated with changes in energy markets such as the Cholla Power Plant closure, the Biden Administration issued Executive Order (E.O.) 14008 (“Tackling the Climate Crisis at Home and Abroad”), which established the Interagency Working Group (IWG) on Coal and Power Plant Communities and Economic Revitalization to facilitate economic revitalization in coal, oil and gas, and power plant communities and to support workers.

The mission of the IWG is to coordinate the identification of economic revitalization resources for coal, oil and gas, and power plant communities; develop implementation strategies for economic and social recovery; assess opportunities to support coal and power plant workers; and submit reports on revitalization efforts. In April 2021, the IWG identified the next steps and priorities for economic transition and revitalization, and described the social, economic, and fiscal conditions in communities experiencing the effects of changing energy markets. One of several issues faced by certain coal and other energy communities is the loss of tax revenue, which translates to fewer resources for local services.

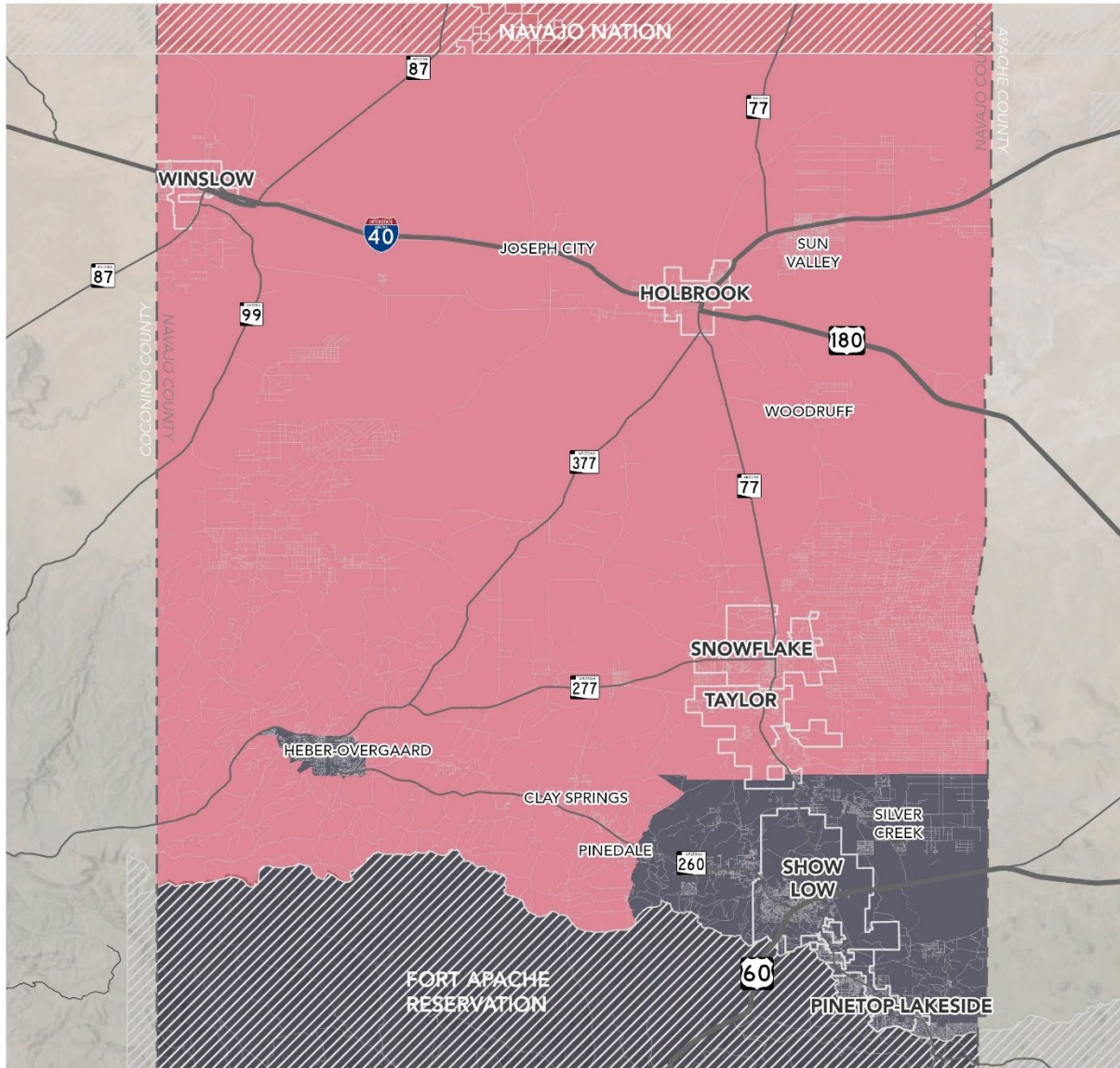
The IWG’s identified the “Arizona non-metropolitan area,” including Navajo County, as a priority community. The priority communities are primarily BLS areas impacted by concentrated, direct coal-related job losses from mine and power plant closures in recent years. According to the IWG, the priority communities were presumed to need the most immediate transition assistance due to their vulnerability to “additional near-term coal mine and power plant closures.” The FY2023 DOE budget justification proposed that the IWG may “proactively promote investments in communities” that are likely to be impacted by closures in the near-term. Additionally, energy tax credits established and amended by the Inflation Reduction Act (P.L. 117-169) provide extra financial incentives for investment in communities with relatively high levels of fossil fuel-related employment (among other communities).



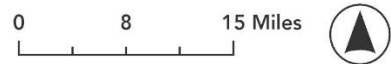
# Navajo County 2050

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Figure 23: Navajo County Advanced Energy Tax Credit Program



## ADVANCED ENERGY TAX CREDIT PROGRAM



- |  |  |
|--|--|
| Navajo County Boundary                             | <b>Advanced Energy Tax Credit Program</b>  |
| Cities and Towns within Navajo County Jurisdiction | 48C Tax Credit Eligible + Energy Community |
| Native Lands                                       | 48C Tax Credit Eligible                    |

Source: U.S Department of Energy, National Energy Technology Laboratory



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Based on the renewable energy potential of both solar and wind resources, Navajo County has an abundance of opportunity to be harnessed. Data from the National Renewable Energy Laboratory estimates the greatest potential for solar energy to be located in the north of the unincorporated county, between the Navajo Nation and Show Low, while the greatest potential for wind energy is in the southwestern unincorporated area of the Sitgreaves National Forest.

In terms of annual average daily solar power, there is no less than 7 kilowatt hours per square meter per year according to the National Renewable Energy Laboratory (NREL) National Solar Radiation Database (NSRDB). The energy-related applications of the NSRDB include, but are not limited to, site and building design, facility integration, transmission and distribution planning, and strategic analysis. (Sengupta, M., Y. Xie, A. Lopez, A. Habte, G. Maclaurin, and J. Shelby. 2018. "The National Solar Radiation Data Base (NSRDB)." *Renewable and Sustainable Energy Reviews* 89 (June): 51-60.) Production cost models used in grid integration studies to evaluate and optimize power plant dispatch utilize NSRDB data. Models coupled with capacity expansion and production cost models are used to characterize and quantify solar supply. Those models use data based on the NSRDB to evaluate land-use impacts, barriers, and scenarios of development futures. Solar energy facility developers use models with long-term NSRDB data to estimate power output and assess specific cost and feasibility. **Figure 24** shows solar potential in the focus area.

The wind speed analysis map in **Figure 25** illustrates multiyear average wind speeds at various heights derived from NREL's Wind Integration National Dataset (WIND) Toolkit. The WIND Toolkit is the largest and most complete grid integration data set publicly available to date and fulfills the necessary requirements of realistically reflecting ramping characteristics, spatial and temporal correlations, and capacity factors of the simulated wind plants, as well as being time synchronized with available load profiles. Average annual wind speeds of 6.5m/s or greater at 80m are generally considered commercially viable. Therefore, there is some potential commercial viability for areas on the northern boundary of the Sitgreaves National Forest, and surrounding Snowflake Taylor on the east and west.

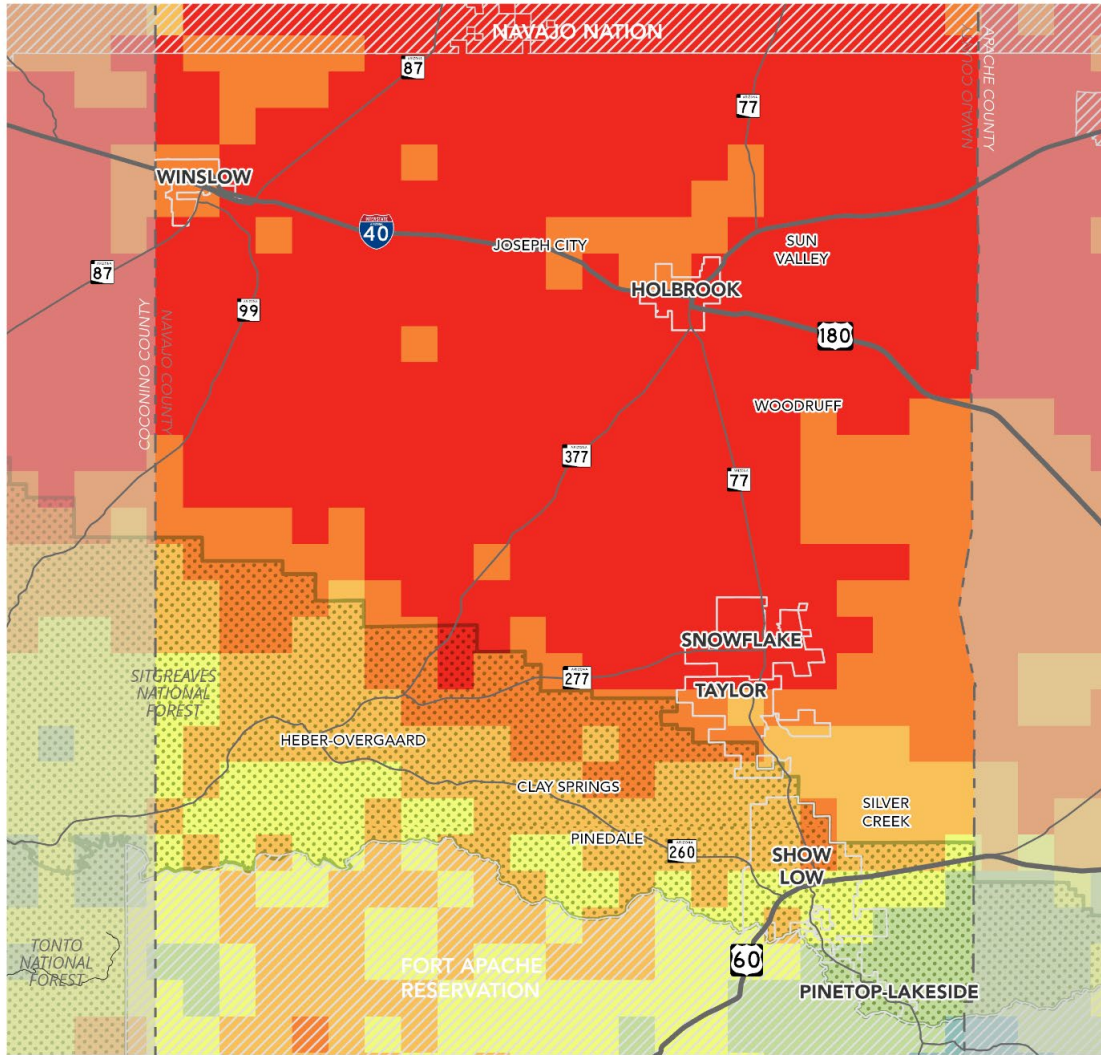




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Figure 24: Navajo County Solar Power Analysis



## SOLAR POWER ANALYSIS

- Navajo County Boundary
- Cities and Towns within Navajo County Jurisdiction
- Native Lands
- National Forest

Annual Average Daily Solar Power (kWh/m<sup>2</sup>/year)

- 6.3 - 6.7
- 6.7 - 6.9
- 6.9 - 7.0

- 7.0 - 7.1
- 7.1 - 7.2
- 7.2 - 7.3
- 7.3 - 7.7

0 8 15 Miles

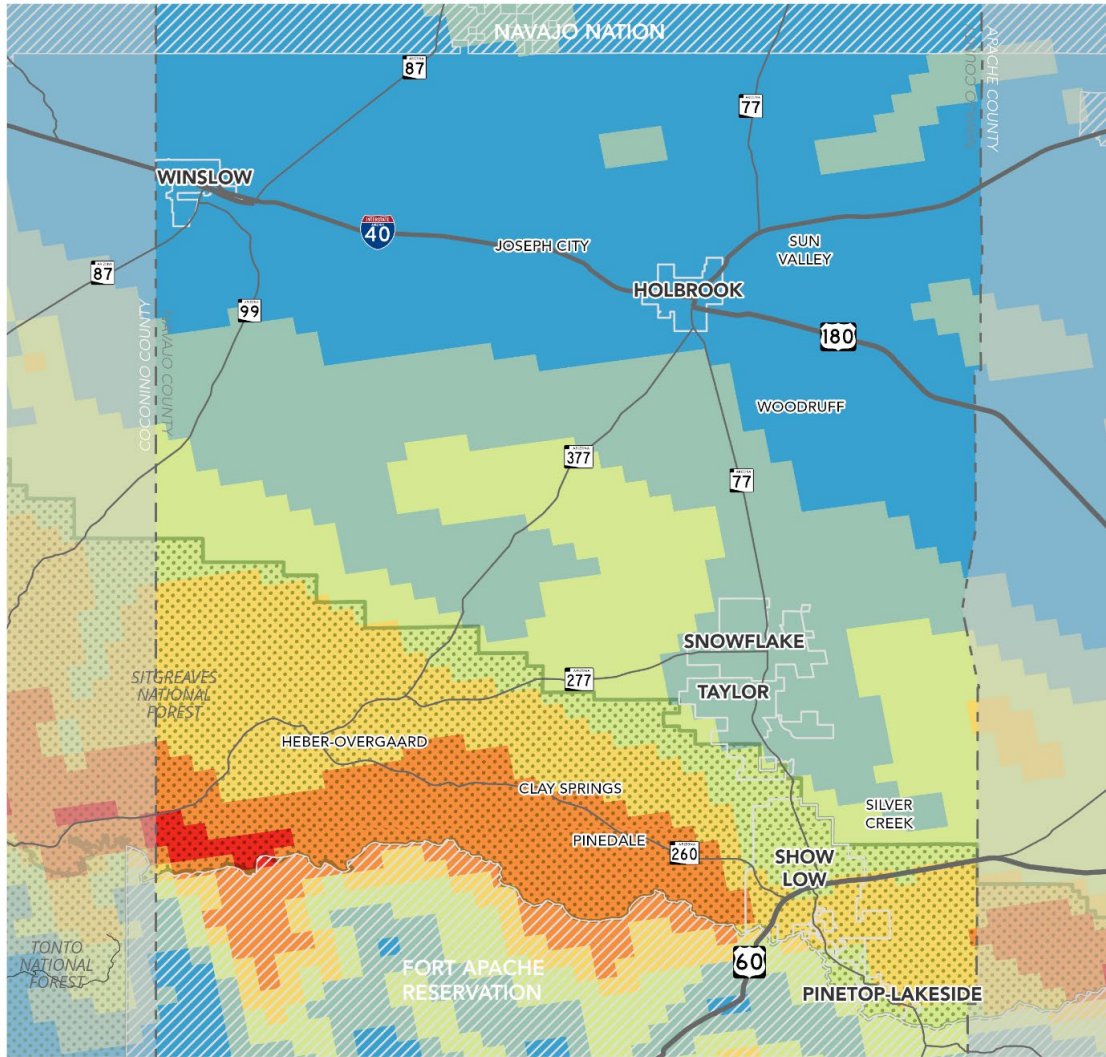




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Figure 25: Navajo County Wind Speed Analysis



## WIND SPEED ANALYSIS

- Navajo County Boundary
- Cities and Towns within Navajo County Jurisdiction
- Native Lands
- National Forest

Wind Speed at 100m (m/s)
1.3 - 5.7
5.7 - 6.4
6.4 - 6.9
6.9 - 7.4
7.4 - 8.2
8.2 - 14.2

0 8 15 Miles





## DEVELOPMENT IMPACTING TRENDS & OPPORTUNITIES

This section provides an overview of development impacting trends as well as opportunities and applies them to Navajo County to help inform the Update itself. Although the governance of the comprehensive plan will exclude the tribal areas to the north and south and as well as the incorporated boundaries of the municipalities, it is important to look at trends and connectivity from a wholistic view. It is also anticipated that the municipalities within Navajo County will expand through annexation during the next 10 years, leaving the unincorporated area with the focus area of the Update smaller than it is currently. That said, ***good coordination between Navajo County and these municipalities and tribal nations as it relates to these development impacting trends is critical to maintaining the quality of life and services for the region.***

Per Arizona Office of Economic Opportunity (AZ OEO), Navajo County's overall population will decline from 110,271 in 2024 to 104,100 in 2040 (-5.6%), however, jobs are expected to increase from 2022 by a total of 30,948 jobs to 33,764 in 2032 (9.1%, 1% annualized). The focus area especially in the municipalities and their contiguous unincorporated planning areas will most likely be the center of this growth trend. Additionally, eighteen percent of the 3,331 square miles in this focus area is owned privately or by the State, therefore, development is also poised to occur in these areas.

The decline in population is a new paradigm in Navajo County as growth has otherwise been steady for decades. Combined with growth in job opportunities, changes need to be planned and managed to ensure quality, sustainable development occurs. Transportation networks, water capacity, and sensitivity to the natural environment must be considered and addressed. Any growth that will occur will most likely do so where there is existing infrastructure or close to areas that have infrastructure. Large scale changes to the demographics, climate/environment, emerging technologies, and economy are discussed here with some specific issues endemic to Navajo County.

### ***Consumer Housing Trends***

Navajo County faces several interconnected demographic challenges. By 2034, there will be a significant shift from a youth-dependent to an old-age dependent population, necessitating adjustments in infrastructure to accommodate aging citizens, including universal design principles. This demographic shift will bring increasing pension and healthcare costs due to age and chronic diseases, disparities in health outcomes, and the influence of social determinants of health (education access, health care access and quality, social cohesion, air & water quality, cultural & traditional practice, and policy & governance). Furthermore, issues of equity, diversity, and inclusion are becoming more pronounced, with projections suggesting the Hispanic population will grow by twenty percent by 2060 despite the total population declining by fourteen percent in the same period. Despite increasing acceptance of diversity among younger generations, there's a simultaneous rise in income inequality, exacerbating societal divisions. Immigration, driven by global factors such as poverty, violence, and political repression, is expected to become the largest contributor to U.S. population growth by 2030, further complicating these demographic shifts.

Households drive housing demand. Because the largest age cohort, the Baby Boom Generation, will be in retirement years by the next decade, they will also be downsizing households looking for smaller homes on small lots or attached units. The graph below shows Navajo County populations by particular housing demand cohorts. Until 2030, populations under the age of 35 looking for starter homes (apartments, condominiums, townhouses, and smaller homes on smaller lots) will remain fairly flat (-2.4% overall). Populations aged 35-64 looking for conventional housing for families on larger lots will slightly decline by

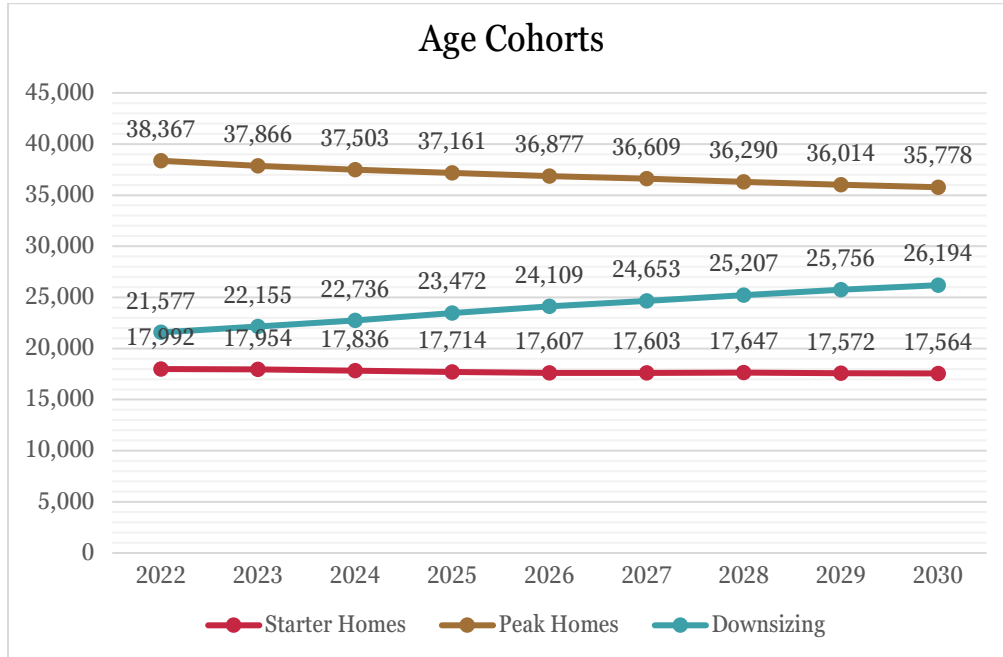




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-6.7%. Baby Boomers will be downsizing as empty nesters, looking for smaller homes on smaller lots with consideration for security and accessibility, and those age 65 and older between now and 2030 will grow by 21.4%



### Climate and Environmental Trends

Climate change will continue to be a driving factor in future growth trends for Navajo County as acute shocks and chronic stresses push the local climate past thresholds into novel equilibria. Extreme weather events and conditions such as rising temperatures, wildfires, drought, and flood pair with social vulnerabilities to create environmental hazards and risks for County residents, communities, and incorporated cities and towns. Climate migration has begun, pushing people from hot climates and urban areas experiencing the Urban Heat Island phenomena into cooler climates. The migration patterns can drive gross migration into and out of the County.

While market forces combine with expanding Federal and State regulations for renewable energies, Navajo has seen the closure of the Kayenta mine and the pending closure of the Cholla power station, eliminating jobs and cutting revenues to public coffers. Alternatively, a 52,000-acre wind energy project is set for the Aztec Land and Cattle Company property. Renewable energy developments like this, along with solar, require infrastructure investments in order to support the shift in energy sources. These same shifts will be helpful in climate mitigation and adaptation strategies to protect energy for homes, businesses, and government, and might provide new job opportunities. However, future development proposals of this nature and size will require more exacting land use regulations to be built and delivered efficiently.

Natural resource depletion, driven by population change and demand for products and necessities will remain a challenge. Management of water, raw materials, and farming and fishing practices may become more sophisticated, but will have to account for tribal rights and traditional practices. Potential local responses include reduced material consumption, increased recycling and renewable energy use, and natural ecosystem restoration.



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Larger scale changes in Federal regulation of international trade and migration will drive changes in globalization versus localization with impacts to economic integration and interdependence, global connectivity via information and communications technologies, and the global spread of pests, invasive species, and pandemics.

## *Emerging Technologies*

Artificial Intelligence stands as one of the most consequential technological advancements of the modern era, offering a myriad of opportunities while simultaneously presenting significant challenges as the digital landscape continues to evolve at an unprecedented pace. Navajo County would be prudent to both analyze and remain current on the trends of AI to understand its multifaceted impact on society, industry, and beyond. While AI stands poised at the forefront of innovation, with its unparalleled capacity to process vast volumes of data to its potential to reshape entire industries, there remain inherent vulnerabilities and ethical quandaries, demanding a nuanced examination of its multifaceted impacts.

Regardless of the ownership model, the increased availability of autonomous vehicles could improve transportation access in rural areas, benefitting residents with limited access to public transportation options or facing challenges in accessing essential services due to geographical isolation. These AVs can serve as mobility solutions for rural residents, particularly those who are elderly or have disabilities. These vehicles could provide on-demand transportation services, improving mobility and quality of life for rural populations. The adoption of autonomous vehicles, particularly in fleet services, could create economic opportunities in rural areas, including new jobs in maintenance, operation, and management of autonomous vehicle fleets, as well as opportunities for local businesses catering to autonomous vehicle users. The balance between fleet-owned and privately owned autonomous vehicles may impact infrastructure development in rural counties. Depending on the predominant model, infrastructure investments may be needed to support autonomous vehicle charging stations, maintenance facilities, or vehicle storage areas. The scenario in which the balance is tipped to private companies owning fleets used in a subscription economy would likely result in unlocked land use potential as parking is centralized instead of distributed by individual ownership. All future autonomous vehicles being electric or hybrid, emissions would be reduced, improving air quality conditions and reducing air pollution and greenhouse gas emissions in rural areas. Educational attainment and future income and wealth may be a driving factor or limitation of AV market absorption, which may have additional consequences for the digital divide. Access to AV fleet services could impact the overall affordability of living in the County.

Overall, the outcomes for rural counties will depend on numerous factors, including the regulatory environment, technological advancements, market dynamics, and local community preferences. As autonomous vehicle technology continues to evolve, rural counties will need to adapt their policies and infrastructure to harness the potential benefits while addressing any challenges that arise.

As the mix of technology and new modes of alternative transportation develop, conventional transportation modes are expected to decline. While American automakers have committed to exclusively manufacturing trucks and SUVs in their product plans for the future, used car prices are still up over pre-pandemic trends. Furthermore, new driver's licenses have been consistently trending downwards over years and decades among younger generations while fixed costs and the cost of operation have risen (higher interest rates, inflation, insurance).

New mobility services such as ridesharing, micro-transit, and delivery drones may increase the demand for curb space in urban areas of the County. This heightened competition for limited space could lead to conflicts between different users, including traditional vehicles, pedestrians, cyclists, and new mobility



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providers. Local transportation infrastructure may not be adequately equipped to handle the increased demand for right-of-way and curb space from new mobility services. The streets and sidewalks will require some improvements in order to accommodate new user technology.

There is the potential for the introduction of new mobility services and connected autonomous vehicles to reduce traffic congestion in rural communities, as innovative technologies increase operational efficiencies or reduce the aggregate spatial dimension of traffic. Affordable alternatives to personal vehicle ownership may capture portions of the market in urban areas or fill gaps in the transportation network. Otherwise, it might just lead to nominal shifts in modal choice. Results could lead to reduced delays, road safety, and potentially improved efficiencies in transportation systems.

## *Trends in the Economy*

Automation has the potential to replace certain tasks and roles traditionally performed by humans, leading to job displacement in rural areas. This may particularly affect industries that rely heavily on manual labor or repetitive tasks, such as agriculture, manufacturing, and transportation while opening new entrepreneurial opportunities such as Agri-tech, renewable energy, and advanced manufacturing.

Automation has the potential to increase productivity in rural industries by streamlining processes, reducing errors, and improving efficiency. This can lead to cost savings for businesses and may contribute to economic growth in rural areas. However, the benefits of increased productivity may not always translate into job creation, especially if automation leads to a net reduction in employment. Workers in these sectors may face challenges in adapting to technological changes and may require retraining or reskilling to remain competitive in the labor market.

Particularly, there may be an increased demand for workers with skills in areas that complement automation, such as programming, data analysis, and technical support. Rural economies may need to invest in education and training programs to develop a workforce with the skills needed to adapt. Finally, while automation can benefit larger businesses, it may pose challenges for small businesses in rural areas lacking the resources and expertise to adopt and implement automation technologies, putting them at a competitive disadvantage, ultimately reducing economic diversity in rural communities.

The growth of E-commerce is poised to play a significant role in shaping the future economy of rural areas. While it may reduce the demand for traditional brick-and-mortar stores in rural communities, it also presents opportunities for experiential retail, particularly in niche markets and specialty goods. Additionally, the expansion of e-commerce is likely to lead to the establishment of warehouses and distribution centers in rural areas, providing employment opportunities and stimulating economic growth. However, the increased reliance on e-commerce may also create new challenges, such as impacts on local street systems due to freight and delivery operations. Overall, e-commerce has the potential to both transform and bolster rural economies, but its full impact will depend on factors such as infrastructure development, workforce readiness, and regulatory considerations.

Rural and tribal economies have the potential to become suppliers of ethically produced goods as consumer demand for environmentally and socially responsible products and business practices increases. Each can prioritize sustainable practices in their agricultural, forestry, and manufacturing activities. This may include implementing organic farming methods, adopting renewable energy sources, practicing responsible land management, and ensuring fair labor practices.

Implementing certification and labeling programs can help rural and tribal producers demonstrate their commitment to ethical and sustainable practices. Certifications such as Fair Trade, Organic, and Forest



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Stewardship Council (FSC) provide consumers with assurance that products meet certain environmental and social standards, thereby increasing market access and demand.

Producers can create value-added products that align with ethical consumption trends. This could involve processing raw materials into higher-value products, such as organic food products, sustainable wood products, or handcrafted goods made with traditional techniques and materials.

Developing market access and distribution networks is crucial for rural and tribal producers to reach consumers interested in ethical consumption. This may involve partnering with retailers, cooperatives, and online platforms that specialize in sustainable and socially responsible products, as well as participating in farmers' markets, community-supported agriculture (CSA) programs, and fair-trade networks.

Engaging with local communities and educating consumers about the benefits of ethical consumption can help generate demand for products sourced from rural and tribal economies. This could involve hosting educational workshops, organizing farm tours, and participating in community events to raise awareness about sustainable practices and the importance of supporting local producers.

Governments and organizations can provide policy support and incentives to encourage ethical consumption and support the local economy. Community Wealth Building is an approach that is establishing itself in markets across the world. Practices among governments and anchor institutions may include public ownership of assets and utilities, municipal enterprise, targeted public pension investments, mobilizing land and property assets, new procurement and workforce development practices that re-localize the economy, in-sourcing of jobs, land trusts and land banks, and a land tax. Private activities could include worker and consumer cooperatives, social enterprises, public and community banks, employee ownership, employee stock ownership plans, and neighborhood crowdfunding.

The sharing economy is projected to continue growing despite regulatory backlash. Some estimates project a fourfold increase to \$700-800 Billion by the end of the decade. As the second home market continues to grow in Navajo County, it may be followed by a rise in accommodations of short-term rentals like AirBnB and VRBO. Unless fleet vehicles are invested in by entrepreneurs, the gig economy of ride-share will probably remain stagnant in urban areas of the County. Otherwise, new business models yet to be developed are characteristically decentralized in nature, creating regulatory ambiguity and confusion for providers and users of goods and services. The sharing economy raises concerns about consumer protection, as well as labor rights and employment benefits and practices including issues related to safety, privacy, and liability. Regulations may need to be updated or expanded to ensure that sharing economy platforms adhere to standards for data security, product safety, and dispute resolution, protecting the rights and interests of consumers on one hand, and that workers are treated fairly and afforded appropriate protections on the other.