

The Economic Value of Trails in Arizona

A Travel Cost Method Study

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What's the issue? Outdoor recreation supports the quality of life and health of individuals, communities, and local economies. The economic value that individuals place on amenities like trails can be measured in terms of *consumer surplus*. Consumer surplus is a monetary measure of how well-off individuals are as a result of consuming or using a particular good, service, or resource. In the case of trails, it measures the value of trails based on the benefits that individuals derive from using them. For goods that are not bought and sold in markets, such as natural amenities, the value of a particular resource can be estimated indirectly using what is known as the *travel cost method*. In this method, benefits of an amenity are based on how much individuals spend in time and money to travel to enjoy a particular amenity. Estimating the economic value associated with use of natural resources and amenities is important in understanding how society is impacted by changes in the quality of or access to those resources. It can help to guide public policy and investments by informing our understanding of the benefits and costs of different actions affecting natural resources and amenities valued by the public.

As a complement to the Arizona State Parks 2020 Trails Plan, this study estimates Arizonans' demand for trail use and the economic value of motorized and non-motorized trail use to Arizona residents using the travel cost method. Trail use includes use of trails managed by Arizona State Parks, the National Park Service, the U.S. Forest Service, the Bureau of Land Management, and other land management agencies for both non-motorized and motorized uses. Non-motorized uses include walking, hiking, mountain biking, and horseback riding/equestrian use, among others, and motorized uses include dirt biking, ATV use, UTV use, side-by-side use, and four wheeling, among others. Additionally, the study includes development of an origin-destination matrix estimating Arizonans' travel for trail-based recreation. This can offer important insight for communities looking to develop or expand their own trail systems, or to inform tourism marketing for communities hoping to attract visitors.

What did the study find?

Total trail use

- ◆ In the past year, Arizonans used trails in the state for **non-motorized** recreation an estimated **83,110,000** times, and for **motorized** recreation an estimated **20,117,000** times.
- ◆ An estimated **59.2%** of Arizona's adult population (or 3,073,100 Arizonans) engaged in **non-motorized** trail use in the past year, and an estimated **24.4%** of the adult population (1,263,600 Arizonans) engaged in **motorized** trail use in the past year. Some trail users participate in both non-motorized and motorized trail recreation.
- ◆ **Non-motorized** trail users averaged **27.0** trail visits in the past year, and **motorized** trail users averaged **15.9**.

Economic value of trails in Arizona

- ◆ The economic value (consumer surplus) derived from non-motorized trail use in Arizona by in-state residents, based on a midpoint estimate, is **\$8.3 billion** per year, with model estimates ranging between \$6.2 and \$10.6 billion. The economic value (consumer surplus) derived from motorized trail use in Arizona by in-state residents is an estimated **\$5.2 billion** per year.
- ◆ Per visit consumer surplus for non-motorized trail use ranged between \$90.32 and \$128.03, depending on travel cost model assumptions, with a midpoint estimate of \$100.06.
- ◆ Per visit consumer surplus for motorized trail use was an estimated \$259.17.

Summary of Arizona In-State Trail Use & Value

Estimate	Non-Motorized	Motorized
Participation Rate	59.2%	24.4%
Est. Participants	3,073,100	1,263,600
Avg. Visits per Year	27.0	15.9
Consumer Surplus per Visit	\$100.06 (\$90.32 to \$128.03)	\$259.17
Statewide Consumer Surplus (Annual)	\$8.3 billion (\$6.2 to \$10.6 billion)	\$5.2 billion

Importance of trails in Arizonans' decision of where to live and visit

In deciding where to live...

- ◆ 77% of non-motorized trail users
&
- ◆ 80% of motorized trails users

...report trail proximity as somewhat important or very important

In deciding where to visit...

- ◆ 83% of non-motorized trail users
&
- ◆ 85% of motorized trails users

...report trail proximity as somewhat important or very important

Even among Arizonans that do not participate in trail-based outdoor recreation regularly, more than **two-thirds** report trail proximity as important in deciding where to live and visit

Top non-motorized and motorized trail destinations

- ◆ Top **non-motorized** trail use destinations include Phoenix, Tucson, Sedona, Apache Junction, Scottsdale, and Flagstaff. These top destinations are heavily reflective of popular trail use areas near major metro areas with large populations.
- ◆ Top **motorized** trail use destinations, though still influenced by major metro areas, are more reflective of areas of the state that attract motorized trail users. Top motorized trail use areas include Apache Junction, Yuma, Buckeye, Black Canyon City, and Carefree.



How was the study conducted? This study relies on data from a stratified random sample survey of Arizona residents eighteen years of age and older collected as part of Arizona's 2020 Trails Plan. The survey collected information on respondents' non-motorized and motorized trail use in the past year, the location of their favorite, most frequently-used, and furthest traveled to trails, as well as individuals' demographics, including their home zip code. The analysis uses the travel cost method to estimate per-visit consumer surplus associated with non-motorized and motorized trail use. Trail use demand is modeled using a zero-inflated Poisson distribution, controlling for respondent socioeconomic and demographic characteristics. The estimates of consumer surplus from non-motorized trail use vary based on assumptions about trail use of high-frequency trail users. This is why a midpoint, low, and high range of estimates are reported. For motorized trail use, data from secondary sources were used to develop a single, central estimate of consumer surplus.

The full report can be accessed at <https://cals.arizona.edu/arec/publication/economic-value-trails-arizona>

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