

Economic Impact of **Off-Highway Recreation** in the State of Arizona

The State of Arizona has abundant natural resources appropriate for off-highway motorized vehicle recreation. Off-highway vehicle (OHV) trails can be defined as multiple use paths open to off-highway vehicles for recreational purpose. Examples of off-highway vehicles (OHVs) include all-terrain vehicles (ATVs), utility task vehicles (UTVs), Side by Sides, recreational off-highway vehicles (ROVs), motorcycles, mopeds and snowmobiles.

In 2016–2017, Arizona State University conducted a study to measure the economic impact of OHV recreation, by retained and out of state visitors, on the State of Arizona. A retained visitor is defined as a local visitor who would have traveled outside the State of Arizona if OHV trails had been absent. The study makes use of web-based questionnaires in addition to onsite surveys at geographically dispersed popular trail locations.



Overall economic impact of OHV recreation on the State of Arizona includes:

- + Leverage ratio is: 1:184:48
- + \$2.64 billion in output
- + \$1.60 billion in value added
- + \$.94 billion in labor income
- + More than 21,077 jobs
- + \$221.76 million in State/Local taxes
- + \$148.23 million in Federal tax revenue

Economic Impact

To determine the economic benefits of OHV recreation, a comprehensive economic impact analysis was conducted which required use of an input/output modeling technique.

Leverage Ratio

The leverage ratio (calculated by dividing total labor income due to recreation at OHV trails by total operating expenses) for managing OHV recreation by the State of Arizona (\$5.08 million) is 1:184.48. This means that for each state dollar invested in net operating cost by the State of Arizona in managing the OHV program, approximately \$184 are generated in resident income.

Impact of Visitor Spending

OHV visitors incur expenditures on a variety of ancillary (recreation and tourism products and services) and vehicle-related items. Total spending in OHV recreation by local and out of state visitors:

\$1.86 BILLION IN TOTAL DIRECT SPENDING:

- \$793.41 million is annual contribution by ancillary sectors
- \$1.07 billion approximately are generated by annual OHV (vehicle-related) expenses
- \$65.51 million out-of-state contribution by ancillary sector expenditures
- \$177.61 million on vehicle operating expenses by out-of-state visitors
- \$727.90 million on ancillary sectors by local retained visitors
- \$888.68 million on vehicle-related expenses by local retained visitors

Economic impact breakdown by vehicle-related expenses and ancillary spending:

Expense Category	Jobs	Labor Income (\$)	Value Added (\$)	Output (\$)
Operating	11,159	601,656,568	1,037,973,487	1,688,519,567
Ancillary	9,896	333,989,541	553,525,912	937,366,712
Total	21,077	940,319,938	1,599,415,134	2,637,044,177

Direct Spending by retained and out-of-state visitors:

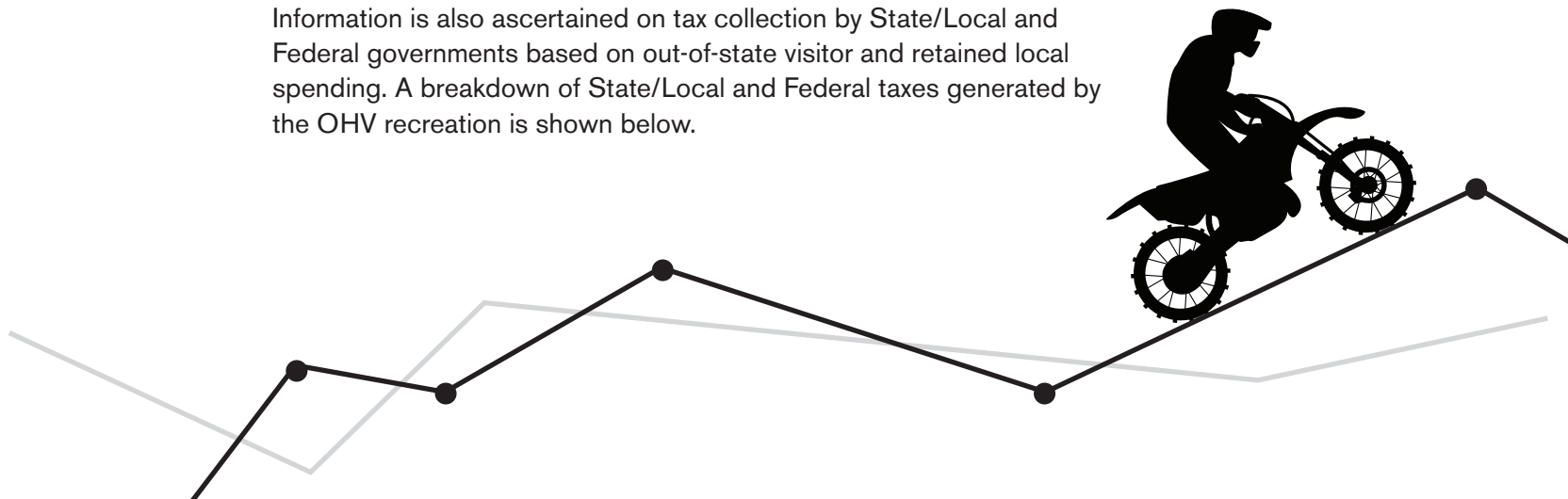
Type of Visitor	Ancillary (\$)	OHV Operating Expenses (\$)	Total Expenditures (\$)
Retained	727,897,419.02	885,664,653.82	1,613,562,072.84
Out-of-State	65,512,121.01	177,606,602.80	243,118,723.81
Total	793,409,540.03	1,063,271,256.62	1,856,680,796.65

Impact of Management/Operating Expenses by the State of Arizona

In 2017, the OHV recreation program was managed by the State of Arizona with a total budget of \$5.08 million. Out of this budget, Arizona State Parks received \$3.07 million. These direct operating expenditures generated 93 jobs, approximately \$10 million in output, \$3.8 million in labor income, and \$5.97 million in value added.

Tax Revenues

Information is also ascertained on tax collection by State/Local and Federal governments based on out-of-state visitor and retained local spending. A breakdown of State/Local and Federal taxes generated by the OHV recreation is shown below.



Tax Category	Employee Compensation (\$)	Proprietor Income (\$)	Tax on Production (\$)	Households (\$)	Corporations (\$)	Total (\$)
Total State & Local Tax	0.00	0.00	201,634,980	17,105,716	3,021,676	221,762,372
Total Federal Tax	103,500,522	4,220,198	8,388,784	22,548,532	9,568,805	148,226,841



PRIMARY REASONS FOR AN OHV TRIP



- 1 Trail riding on a Side by Side/UTV
- 2 Trail riding/ATVs
- 3 Driving back roads



OHV Visitor Travel Behavior and Profile

An effort is also made to determine the travel behavior and marketing profile of OHV visitors based on online survey responses. Key findings are presented as follows:

MOST POPULAR VEHICLE ACROSS ALL OHV

43%

**UTV/
Side by Side**

18%

SUV/Jeep

15.3%

ATV

13.4%

Dirt Bike



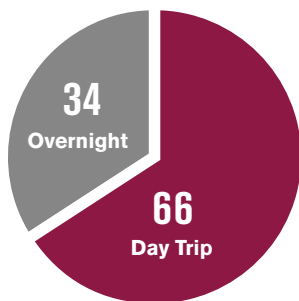
Median party size
(for both day trips
and overnight trips)



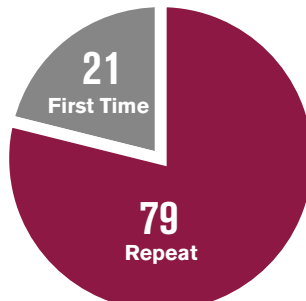
Average number of
times an OHV trail
was visited by all
OHV visitors



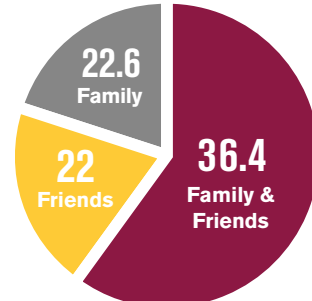
OHV VISIT STAY (%)



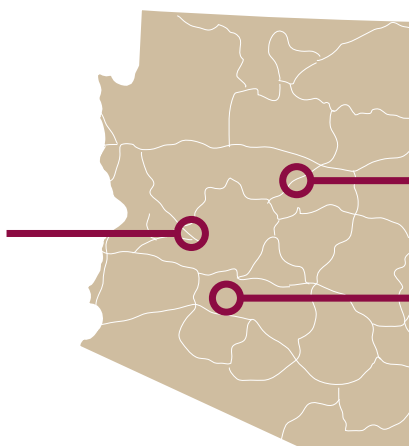
TRAVEL VISITS (%)



TRAVEL COMPANIONS (%)



Almost **19.9%**
and **14.9%** of the
patronized OHV
trails are located
in Yavapai and
La Paz counties
respectively



Most popular OHV trail is
BOULDERS followed by
Havasupai and Table Mesa

Approximately, **27.8%**
of most frequented
trails are located in
Maricopa County

The Most Common Source of Information for OHV Users:

- + Word of mouth
- + Online/website
- + Maps/GPS programs
- + State/Federal agency



Most visitors reside in
the STATE OF ARIZONA
and the majority of them
are from MARICOPA
COUNTY.



Approximately **91%**
of the respondents
are Caucasians.



Average age across all
visitors is **55 YEARS**
with a median value
of **56 YEARS**.



Approximately **87%** ARE
MALES and approximately
41.4% have attended at least
some college/technical school
and **56%** are college graduates.



Only 7.4% of the OHV users
EARN LESS THAN **\$40,000**
in annual household income
and **48.6%** of the respondents
EARN MORE THAN **\$100,000**
on annual household income.



Method

- A total of 3,550 online surveys were collected in the year 2017 resulting in 1,654 completed surveys.
- Total number of onsite surveys was 142.
- Based on the weighted percentage of OHV users reported in Arizona Trails 2015 Plan, 12.6% of local residents of Arizona are reported to be OHV users.
- According to the online survey results, 90% of the OHV visitors are from Arizona and 10% are from out-of-state.
- The total population of Arizona, according to the 2017 census data, is 7,016,270.
- Based on this population, a total of 792,109 local OHV users are calculated.
- A total of 890,336.8 OHV users are estimated by adding 10% for out-of-state OHV visitors.
- Retained OHV visitors total 554,413, of which 372,566 are day trippers and 181,848 are overnight visitors.
- A total of 98,228 out-of-state visitors are calculated out of which 39,488 are day trippers and 58,740 are overnight visitors.
- Retained spending data is based on 900 surveys and out-of-state spending data is based on 142 surveys.

Robusticity of Web-based surveys

Web-based surveys have been noted as one of the most significant advances in survey methodology despite some limitations associated with computer anxiety, interface issues and different screen formats.

Advantages include:

Low cost, fast response time, and flexibility:

Online surveys can be conducted very quickly and efficiently. The respondents can conveniently complete the survey at their own pace.

Interactivity without interviewer bias:

The interactivity nature of the Internet reduces possible bias due to the absence of the interviewers.

Quick and easy access:

One key advantage is the ability to effectively reach respondents across different geographic locations.

Target sample selection:

It is easier to accurately select respondents, e.g., with a pop-up invitation window when certain responses are recorded by the system. Also, respondents can be conveniently directed to questions of relevance.

Increasing use of Internet-based resources. Several studies project increasing popularity of Internet for trip/recreation planning. Therefore, web-based surveys will continue to become a popular method of data collection with potential to reach a more diverse segment of OHV visitors.

Desensitize sensitive subjects:

Being able to complete an online survey with privacy and convenience can minimize embarrassment and sensitivity towards certain controversial issues or personal topics. Online surveys can also be used to collect information related to unpopular beliefs or attitudes. In addition, online surveys provide stronger anonymity when compared to other survey techniques.

Less processing errors: Responses are recorded online simultaneously. With careful design, typical data input and processing errors can be avoided.



Study Limitations

Like all studies, this study is also subject to logistical and methodological limitations. The self-reported responses, from online surveys are voluntary and run the risk of excluding certain populations who do not have access to the Internet and might be in the low-income category. Furthermore, most people find out about the OHV trails by word-of-mouth. Although representativeness of an online sample has been a cause of concern, this study made a dedicated effort to minimize the limitation as data was collected throughout the year (2017). In addition to making the survey available at the Arizona State Parks and Trails website, the link was forwarded to OHV event attendees, different mailing lists, associated partners/organizations, OHV clubs and organized groups. It was not possible to capture the vehicle-related spending of out-of-state visitors since it was assumed that most expenditures would occur in the state of their residence. It is likely that some portion of vehicle-related expenses were incurred in Arizona. A future study can include a question to help capture that portion of vehicle-related expenditures. It is likely that the economic impact of vehicle-related spending is underestimated.

Last, this study is only able to present descriptive results from the onsite survey data. Although most of the spending figures from onsite surveys were comparable to those reported by the web-based surveys, the sample size was small. Nevertheless, this study is unique because it also includes retained spending of locals residing in the gateway region for each trail site. It is argued that the spending of residents, who would have gone to a substitute OHV recreation trail outside the state if the OHV trails had been absent, is retained spending. This spending is retained by the State.

DEFINITIONS

Output: is the total value of production for any given period of time. It can also be described as a total sales value generated because of change in demand (by an extra unit of visitor spending in the host region).

Employment: are self-employed, wage and salary employees, and all full-time, part-time and seasonal jobs over a period of twelve months.

Value Added: is the combination of labor income, other property type income, and indirect business taxes.

Labor Income: is composed employee compensation and proprietor income.

Tax Impacts: are categorized as Federal and State/Local.

Leverage Ratio: refers to the number of dollars generated in resident income for local residents for every dollar invested by the State of Arizona in annual operating expenses. Leverage ratio can be calculated by dividing labor income with total operating expenses.



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