ARCHAEOLOGY

for a Changing Colorado

TECHNICAL REPORT

2021

Table of Contents

4. ARCHAEOLOGY TODAY

4.1 INTRODUCTION AND OVERVIEW

A. OVERVIEW OF THE PROJECT

In 2002, 2005, 2011, and 2016, the History Colorado State Historical Fund (SHF) produced a series of reports on the economic benefits of historic preservation in Colorado, the latest being: *Preservation for a Changing Colorado*. Each subsequent report in the series has provided additional detail, analysis, and nuance about the changing nature of historic preservation and its impacts on the state economy. Although archaeology and historic preservation are distinct fields, archaeology projects are often funded through similar organizations and funding streams. As a result, previous historic preservation reports have captured some of the economic impacts and benefits of archaeology projects, but these reports have not typically highlighted archaeology efforts or provided a similarly detailed analysis of how archaeology contributes to the state economy. This archaeology-focused study, funded by the SHF, is the result of advocacy by the archaeology community for such a report.

Archaeology for a Changing Colorado draws from the organization of the most recent historic preservation report—*Preservation for a Changing Colorado*—and follows a similar structure and methodology where possible. Of course, as the first study of the impacts of archaeology on a state economy (in any state), this report explores new areas of analysis.

While the focus of this effort is to work towards a clearer understanding of how archaeology impacts the Colorado economy, this report is also an opportunity to inform the public about the field, highlight the ways that archaeology benefits everyday Coloradans, and to celebrate the long-time and ongoing efforts of archaeologists and others involved in the field.

B. SUMMARY OF FINDINGS

Colorado is home to some of the nation's most significant and recognizable archaeological sites—most notably, Mesa Verde. But Coloradans may also be familiar with prominent archaeological finds at Magic Mountain near Golden, the recent cultural history of the Amache Relocation Center, and the ongoing contributions of sovereign tribal nations to the history and culture of the state. Preservation projects, tourism, and employment at these sites, places, and communities have resulted in economic benefits within those communities and to the state. This report identifies and explains these economic impacts and explores the qualitative impacts of certain activities and efforts to demonstrate how archaeology is relevant and contributes to modern-day Colorado.

The economic benefits of archaeology in Colorado are significant but fragmented across numerous industries. The various methodologies required to compensate for disjointed data makes it difficult to provide any one value for annual economic benefit. Therefore, this report details fiscal impacts in a segmented nature—organized into three major categories, each with subcategories:

(1) Preserving Archaeological Sites

(A) Grant Funding

Since 1993, archaeology projects have resulted in over $35 million in grant awards from the SHF, over $135 million in grant awards from the federal government, and another $14.5 million from private and institutional organizations. These direct investments, totaling over

$185 million, resulted in employment and other indirect impacts valued at almost $229 million. In total, efforts to preserve archaeological sites through grant funding resulted in about $416 million in total economic impacts to the state economy.

(B) Cultural Resource Management

Between 2012 and 2019 employment in cultural resource management was estimated to have resulted in almost $109 million in direct wages to professional archaeologists and anthropologists, resulting in almost 1,750 jobs created, nearly $85 million in earnings for other households, over $134 million in indirect impact (i.e., value added across all other industries), and an estimated increase in economic output in Colorado of over $240 million.

(C) State and Federal Oversight

Between 2015 and 2019, economic activity generated by state and federal review and permitting processes led to over $145 million in direct economic activity, which created over 2,500 jobs and generated over $130 million in labor earnings. The resulting indirect impact was over $195 million with a total impact of over $330 million over the five-year period.

(2) Visiting Archeological Sites

(A) Heritage Tourism

In 2019, $10.5 billion in direct spending by heritage tourists in Colorado led to almost 79,000 jobs created, $3.3 million in employee earnings, and generated almost $650 million in state and local taxes (not including property taxes)—the majority of which went to local government.

(B) Museum and Cultural Site Visitation

Visitation at museums and cultural sites are part of the overall heritage tourism industry but is detailed as a relevant subset of the greater industry. Between 2015 and 2019 tourist spending along Colorado's 26 byways resulted in over $1.2 billion in labor earnings, created almost 29,000 jobs, and led to almost $264 million in state and local taxes. In 2019, almost $65.5 million in direct visitor spending at national parks, monuments, and historical sites led to almost $82 million in total economic impacts, with almost 1,000 jobs created. In 2017, museums in Colorado directly supported 8,100 jobs, and a total of over 16,000 jobs, while generating over $767 million in employee income, over $1 billion in gross value added, and almost $257 million in federal, state, and local taxes. Each of these economic impacts are based on unique datasets that may duplicate some tourism spending and should not be considered collectively.

(3) Celebrating and Strengthening the Archaeological Community

(A) Archaeology Events

Between 2009 and 2019, archaeology-related conferences and events contributed over $29.9 million in direct impacts and $18.6 million in indirect impacts for a total economic benefit to the state of $48.5 million.

(B) Archaeology Education

In 2018, the year with the most complete data available, the direct economic impact of anthropology and archaeology education was over $12.2 million.

(C) Colorado Archaeological Society

Between 2017 and 2019, the combined overall direct economic impacts of CAS volunteerism was over $481,000.

(D) Avocational Archaeology

The economic impact of the Avocational Archaeology is not well understood or quantified in this report due to data limitations. However, transportation, lodging, dining, equipment and materials, and the indirect professional benefit from certifications and applied experience undoubtedly provide direct and indirect economic impact throughout Colorado.

4.2 PRESERVING ARCHAEOLOGICAL SITES

A. GRANT FUNDING

(1) State Historical Fund

(A) Overview and Background

The History Colorado State Historical Fund (SHF) awards both competitive and non-competitive grants each year for projects that demonstrate strong public benefit and community support. The SHF is funded by state gaming revenues through a 1990 constitutional amendment allowing limited gaming in the cities of Black Hawk, Central City, and Cripple Creek. After the administration costs of the gaming control commission and the cost to the State to administer the amendment, 28 percent of proceeds from gaming in Colorado are transferred to the SHF where 20 percent of that funding is dedicated to historic preservation in cities of Black Hawk, Central City, and Cripple Creek, and 80 percent is used to support the History Colorado Center in Denver and for the historic preservation and restoration of historical sites and municipalities throughout the state.

The SHF awards grants to a wide variety of preservation projects including restoration and rehabilitation of historic buildings, architectural assessments, archaeological projects, historic resource surveys, designation and interpretation of historic places, preservation-planning studies, and education and training programs. Seven types of grants are awarded by the SHF: four types of competitive grants and three types of non-competitive grants (see Table 4.1, below).

TABLE 4.1 TYPES OF SHF GRANTS [1]

NON-COMPETITIVE	PURPOSE	MAX. AWARD	CASH MATCH
Historical Structure Assessment	Preparing a report of the physical condition of a historic building or structure in accordance with a mandatory state Historical Fund assessment outline.	$15,000	None, except 50% for private/for-profit business
Archaeological Assessment [2]	Collecting and evaluating archaeological information from a specific site or area in order to create a plan for preservation or additional work.		None, except for private/for-profit business encouraged
Emergency	Providing assistance to significant resources that are in imminent danger of being lost, demolished, or seriously damaged when such threat is sudden and unexpected such as fire, flood, hail, or other acts of nature and not deferred maintenance.		None, except 50% for private/for-profit business
COMPETITIVE [3]	**PURPOSE**	**MAX. AWARD**	**CASH MATCH**
Acquisition & Development	Stabilization, restoration, rehabilitation, reconstruction, or acquisition of a property or site.	Mini: $35,000; General: $200,000	25% for properties owned by applicant; 50% for properties owned by private/for-profit business
Archaeology	Identification, recordation, preservation, and interpretation of archaeological resources. This includes ancient and historic sites as well as artifact collections.		
Education	Providing information about historic sites or historic preservation to the public through interpretation, curriculum development, public outreach, or other educational opportunities that pertain to a site(s).		
Survey & Planning	Identification, documentation, evaluation, designation, and planning for the protection of significant historic buildings, structures, sites, and districts. Also includes construction documents with no physical work.		

Notes: [1] Archaeology work may be completed as part of any of the competitive or non-competitive grants, but this was not tracked separately before 2019.
[2] First awarded in Fiscal Year 2003.
[3] In data, these grants are categorized as either Mini (M) or General (0) and not by type of grant.

Most archaeology-related projects are awarded grants under the Archaeological Assessment (AS) non-competitive grant or the Archaeology competitive grant. The non-competitive AS grant is intended to support the collection and evaluation of archaeological information from a specific site or area in order to create a plan for preservation or additional work. The maximum award under the AS grant is $15,000. The AS grant has no designation requirements, has an open application deadline, and only encourages a cash match from private or for-profit business owners.

The competitive Archaeology grant is for the identification, recordation, preservation, and interpretation of archeological resources and provides awards up to $200,000. The Archaeology grant requires local landmarking or designation as a State or National Register of Historic Places for projects that physically impact the site and a cash match of up to 50 percent, depending on property ownership.

While those two grants are the most archaeology-specific funding sources awarded by SHF, History Colorado awards other grants that often include archaeology in their scopes of work.

For instance, built environment projects with archaeology disturbing activities require archaeological monitoring.

(B) Summary of Activity

Over the 27 years of SHF grant data reviewed for this report, 408 grants were awarded to archaeology-related projects—varying from four grants in 1993 and 2015 to 30 grants in 2003. On average 15 SHF grants are awarded to archaeology projects each year.

Between 1993 and 2019, almost $22 million in grants were awarded throughout Colorado, with over $13.2 million in cash matches, for a total of over $35 million in funding for archaeology projects in Colorado (see Table 4.2). The average year sees over $1.35 million in direct investment into archaeology work through SHF grant efforts.

TABLE 4.2 SHF GRANT AWARDS (1993-2019)

YEAR	AWARDS	GRANT AWARD	MATCH	TOTAL VALUE
1993	4	$117,870.95	$73,578.56	$191,449.51
1994	13	$691,493.54	$615,600.68	$1,307,094.22
1995	17	$681,576.08	$1,195,193.65	$1,876,769.72
1996	20	$1,596,461.58	$1,047,222.10	$2,643,683.68
1997	10	$854,233.88	$197,413.05	$1,051,646.94
1998	19	$1,163,430.72	$533,991.12	$1,697,421.85
1999	12	$612,225.77	$234,036.78	$846,262.55
2000	18	$1,132,273.31	$644,080.73	$1,776,354.03
2001	16	$1,319,729.48	$1,300,740.47	$2,620,469.95
2002	15	$1,844,908.48	$935,901.22	$2,780,809.70
2003	30	$1,118,594.54	$539,375.51	$1,657,970.06
2004	29	$1,322,687.98	$846,009.16	$2,168,697.14
2005	19	$984,092.01	$720,536.36	$1,704,628.37
2006	24	$744,382.04	$381,309.94	$1,125,691.98
2007	22	$1,260,076.02	$947,307.65	$2,207,383.67
2008	18	$912,330.44	$581,117.49	$1,493,447.94
2009	19	$901,836.68	$790,624.43	$1,692,461.12

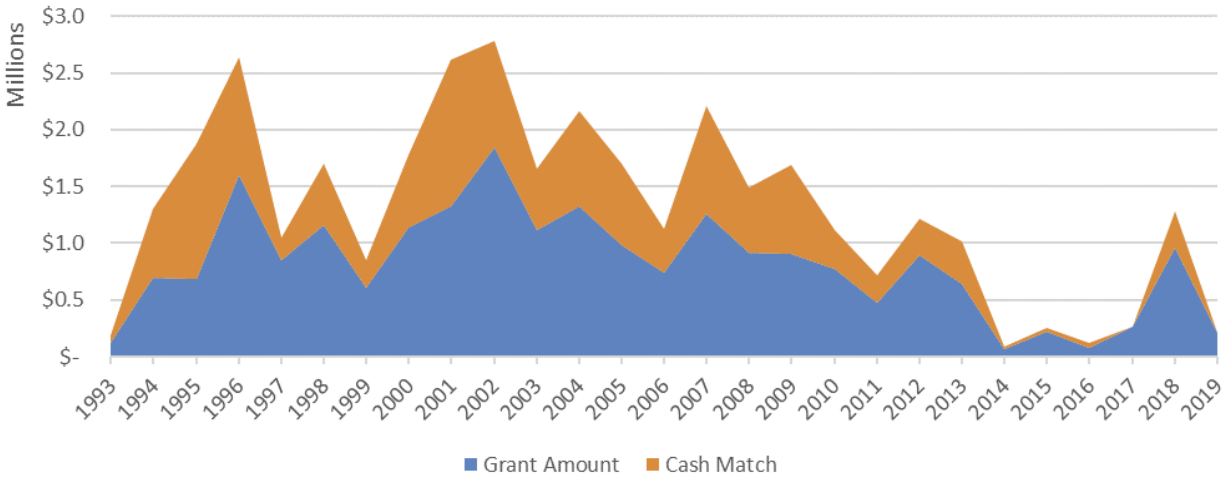
TABLE 4.2 SHF GRANT AWARDS (1993-2019)

YEAR	AWARDS	GRANT AWARD	MATCH	TOTAL VALUE
2010	13	$772,427.27	$341,579.61	$1,114,006.88
2011	13	$479,674.94	$240,608.02	$720,282.96
2012	22	$891,422.05	$325,784.89	$1,217,206.95
2013	15	$645,740.44	$366,484.81	$1,012,225.25
2014	5	$71,177.43	$22,764.34	$93,941.78
2015	4	$218,536.51	$39,075.78	$257,612.29
2016	7	$81,889.00	$35,832.64	$117,721.64
2017	7	$267,308.84	--	$267,308.84
2018	11	$965,864.02	$317,447.28	$1,283,311.30
2019	6	$208,246.52	--	$208,246.52
TOTAL	408	$21,860,490.53	$13,273,616.29	$35,134,106.82

Note: All values adjusted for inflation (August 2019)
Source: State Historical Fund

There are annual fluctuations in how much is awarded for archaeology work in Colorado—ranging from over $1.3 million in grants in 2001 to just $81,889 in 2016 (not including matching funds). These year-to-year changes are detailed in Figure 4-1, below.

Figure 4-1 Value of SHF Grants (2019 Dollars)



Grants awarded by SHF are widely distributed to 48 of Colorado's 64 counties, with some projects also having a regional or statewide scope that delivers benefits across the state.

Montezuma County, home of Mesa Verde National Park, Hovenweep National Monument, and a significant concentration of Colorado's most notable archaeological sites has garnered over $13.5 million in combined SHF grants and matching funds—31 percent of all SHF grants and 47 percent of all matching funds tied to SHF grants.

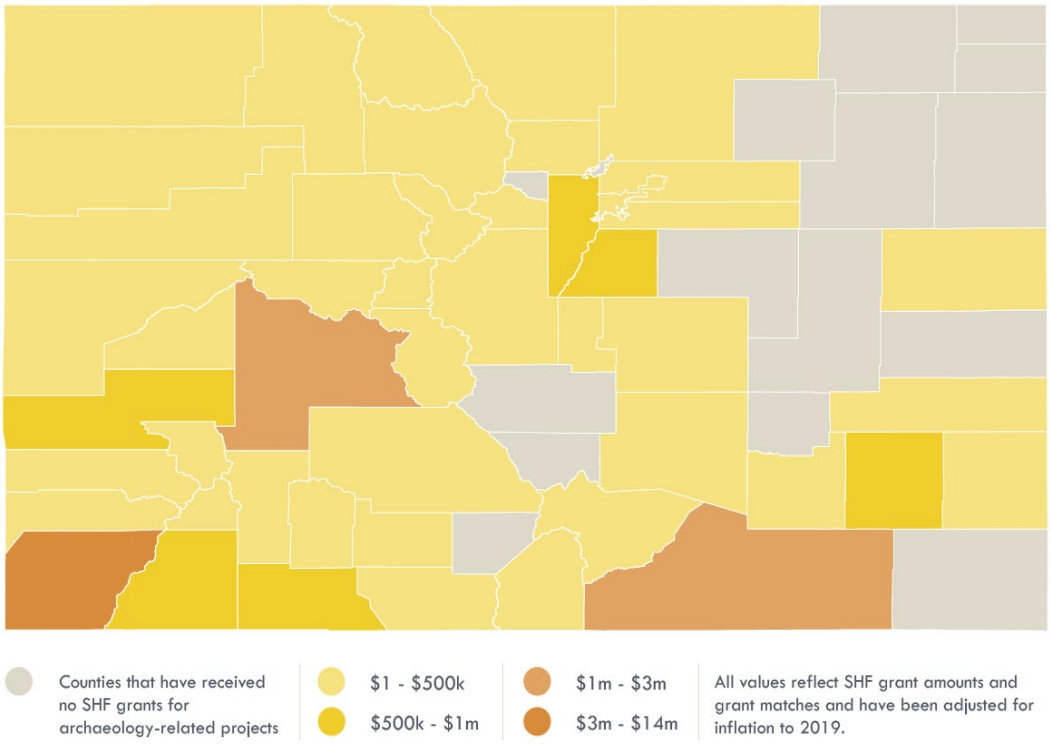
Statewide and regional (i.e., multi-county) projects and archaeology projects on the Western Slope have also earned significant grant funding through SHF in comparison to other regions. Table 4.3, below, details the regional breakdown and Figure 4-2, below, shows the distribution of funds by county.

TABLE 4.3 SHF GRANT AWARDS BY REGION [1]

REGION	GRANT AWARD	MATCH	TOTAL VALUE
Eastern Plains [2]	$1,222,192.69	$427,961.56	$1,650,154.24
Metro & North [3]	$1,928,573.79	$731,356.87	$2,659,930.66
Pikes Peak & South [4]	$2,165,968.89	$996,976.51	$3,162,945.39
San Juan Basin [5]	$7,935,865.43	$6,992,814.84	$14,928,680.28
San Luis Valley [6]	$507,642.34	$175,066.64	$682,708.98
Western Slope [7]	$4,005,976.04	$1,601,785.55	$5,607,761.59
Statewide & Regional	$4,100,742.93	$2,351,063.22	$6,451,806.14
TOTAL	**$21,866,962.10**	**$13,277,025.18**	**$35,143,987.28**

Notes: [1] All values adjusted for inflation (August 2019)
[2] Eastern Plains: Baca, Bent, Cheyenne, Crowley, Kiowa, Kit Carson, Lincoln, Logan, Morgan, Otero, Phillips, Powers, Sedgewick, Washington, and Yuma counties
[3] Metro & North: Adams, Arapahoe, Boulder, Broomfield, Clear Creek, Denver, Douglas, Elbert, Gilpin, Jefferson, Larimer, and Weld counties
[4] Pikes Peak & South: Chaffee, Custer, El Paso, Fremont, Huerfano, Lake, Las Animas, Park, Pueblo, and Teller counties
[5] San Juan Basin: Archuleta, Dolores, La Plata, Montezuma, and San Juan counties
[6] San Luis Valley: Alamosa, Conejos, Costilla, Mineral, Rio Grande, and Saguache counties
[7] Western Slope: Delta, Eagle, Garfield, Grand, Gunnison, Hinsdale, Jackson, Mesa, Moffat, Montrose, Ouray, Pitkin, Rio Blanco, Routt, San Miguel, and Summit counties
Source: State Historical Fund

Figure 4-2 Archaeology-Related SHF Grants and Matching Funds by County (1993-2019)



(C) Methodology

Over time, the SHF has altered how grant data has been collected and tracked, which has led to some inconsistency over time. For purpose of this project, SHF staff analyzed data across these different eras of methodology and provided the best available data for archaeology-specific grant projects.

Data on the number of archaeological grants, the value of each grant, and the cash match provided as part of the grant application was provided by SHF staff. In addition to the grant amount and cash match, the data provided includes the grant year, reference number, resource name, project title, and the geographic area served—typically the county and city where applicable. The grant amounts listed are the original award amounts. If a grant was declined by the applicant or rescinded by the SHF, that grant was removed from this analysis. If less than the entire grant amount was used (i.e., a project was completed under budget) the full amount awarded was still used in this analysis. If the project cost was greater than the original grant award and additional grant funding was awarded, the amount of the additional award is listed as a separate grant award.

In recent years, SHF has also tracked when archaeological monitoring is conducted as part of any grant-funded project, including those not related to an archaeological resource. For example, in 2019 a grant was awarded to complete Phase III of an Exterior Restoration of the Silverton Northern Railroad Engine Shed. The $200,000 SHF grant award with a cash match of $74,862 included over $2,000 dedicated to archaeological monitoring. This budget sub-category was not tracked by SHF prior to 2019.

Although a cash match is not required to receive a non-competitive grant, any cash match that was provided as part of the grant application is included when available. This metric has

not been tracked by SHF consistently over time, so this value is likely underreported in the summary tables, above. Additional grant funding sources, in-kind contributions, and financial contributions may also be part of the overall economic impact of each project, but this data is not collected by SHF. For example, even when an archaeology project is awarded a grant and provides a cash match, there may be additional costs that are not reported or tracked. A useful metric that the SHF should consider tracking in the future is the overall cost of a project to capture this gap in the data.

The value of SHF grants awarded to archaeology projects has been adjusted for inflation to 2019 dollars using the Consumer Price Index (CPI) provided by the U.S. Bureau of Labor Statistics (BLS). This ensures values as far back as 1993 can be compared in terms of the same dollar value for direct comparison. This also allows the true economic impact of the grants to be compared on the same scale without the influence of inflation. For example, the total value of grants issued by the SHF for archaeology projects in 1993 was $70,277; however, this dollar amount would be equivalent to $123,663 in 2019, adjusting for changes in consumer prices (i.e., inflation).

The detailed SHF database used for this report is available in Microsoft Excel format on the project website (www.archaeologybenefitscolorado.com/).

(2) Federal Government

(A) Overview and Background

Many federal agencies engage in archaeology work, either as part of their directive or as a necessary task to ensure that their work—or work they fund—avoids or minimizes impacts on archaeological resources. Federal agencies also award grants to fund efforts from other agencies or organizations, which is the focus of this subsection of the report. The following agencies and subagencies are known to award grants for archaeology work:

i. Corporation for National and Community Service (CNCS)
ii. Department of Agriculture (USDA)
    1. Rural Business Cooperative Service (RBS)
iii. Department of Defense (DOD)
    1. Department of the Army (DA)
iv. Department of the Interior (DOI)
    1. Bureau of Indian Affairs (BIA)
    2. Bureau of Land Management (BLM)
    3. Bureau of Reclamation (USBR)
    4. National Park Service (NPS)
    5. Office of Surface Mining, Reclamation, and Enforcement (OSMRE)
    6. U.S. Fish and Wildlife Service (FWS)
v. Department of Transportation (DOT)
    1. Federal Highway Administration (FHA)
vi. National Archives and Records Administration (NARA)
    1. National Historical Publications and Records Commission (NHPRC)
vii. National Endowment for the Humanities (NEH)

viii. National Science Foundation (NSF)

1. Division of Behavioral and Cognitive Sciences (BCS)
2. Research on Learning in Formal and Informal Settings (DRL)
3. Division of Undergraduate Education (DUE)
4. Division of Earth Sciences (EAR)
5. Directorate for Geosciences (GEO)
6. Integrative and Collaborative Education Research (ICER)
7. Office of International Science and Engineering (OISE)
8. Office of Polar Programs (OPP)
9. Division of Polar Programs (PLR)
10. Division of Social and Economic Sciences (SES)
11. Office of Multidisciplinary Activities (SMA)

(B) Summary of Activity

Table 4.4, below, details the annual grant funding awarded by all federal agencies for archaeology-related projects in Colorado. In total, almost $135.6 million was awarded to archaeology projects in Colorado between 2002 and 2019. On average, Colorado receives over $7.5 million annually in grant awards for archaeology-related projects, although the actual total varies from $0 to over $64.6 million.

Between 2015 and 2017 Colorado received a significant and above average amount of grant funding—$28.5 million in 2015, $64.6 million in 2016, and $13.7 million in 2017. Most grant funding given during these years was awarded to Colorado State University (CSU) through the Department of Defense's (DOD) Legacy Resource Management Program, an effort to protect and enhance natural and cultural resources on military lands. Like all data on grants in this report, the award years are based on the date the grant was awarded, but most archaeology projects are multi-year efforts, so the impacts may be distributed over several years. All values have been adjusted for inflation to the 2019 value of the U.S. Dollar.

TABLE 4.4 FEDERAL GRANT AWARDS (2002-2019)

YEAR	GRANT AWARDS	AWARD VALUE
2002	3	$4,054,472.76
2003	0	--
2004	3	$246,930.15
2005	0	--
2006	6	$1,144,309.89
2007	1	$15,767.39
2008	7	$3,582,628.78

TABLE 4.4 FEDERAL GRANT AWARDS (2002-2019)		
YEAR	**GRANT AWARDS**	**AWARD VALUE**
2009	8	$1,330,209.73
2010	9	$1,242,799.46
2011	7	$1,309,830.15
2012	17	$2,264,277.63
2013	9	$2,715,432.24
2014	27	$4,755,992.40
2015	15	$28,491,267.72
2016	19	$64,642,535.60
2017	20	$13,695,731.23
2018	17	$4,882,768.88
2019	11	$1,202,028.00
Total	**179**	**$135,576,981.99**

Notes: All values adjusted for inflation (August 2019)

(C) Methodology

Using the U.S. Department of the Treasury's (USDT) online database (www.usaspending.gov), a search was completed for grants awarded to projects that feature one of the following keywords in their title, objective, or description: archaeology, archaeological, CRM, "cultural resource," prehistory, and prehistoric. The query returned 2,513 prime grant awards and 909 sub-awards, which were downloaded as distinct spreadsheets for analysis. Grant data on the USDT online database included information on grants awarded as far back as fiscal year 2002, but the most complete data available was for 2008 through 2020.

The two datasets were kept separate because they track some different information and have different titles for some data categories. However, a similar process was undertaken to sort the data and isolate grant awards given to Colorado-based awardees or for projects to be performed in Colorado.

To remove the non-relevant *prime* grant awards from the data exports, the dataset was filtered by the state that the recipient was located. Awards given to Colorado-based organizations were set aside as relevant projects. Grants awarded to recipients outside of Colorado (including international organizations) were then isolated and filtered again based on the primary place of performance (i.e., where the project is primarily taking place). These grant awards for work to be done in Colorado were combined with those given to Colorado-based organizations and reviewed to ensure projects were not double counted. Following

analysis, only 142 prime grant awards were found to either be awarded to a Colorado-based firm or awarded for work done in Colorado.

Following a similar methodology, the 909 sub-awards were filtered to isolate only projects where the prime grant awardee was Colorado-based or the place of performance was in Colorado, or the sub-award winner was based in Colorado, or the place of performance was in Colorado. Again, the projects were reviewed to confirm that there were no duplicates or overlapping of grant awards. Following this analysis, only 37 sub-awards were determined to be relevant.

Each grant award was given a unique award code by the federal government. This code was used to sort out any overlapping or duplicate grant awards. Where there was a duplicate award code used, further research was conducted to determine if the award was a duplicate or a change-order issued under the same award code (e.g., an increase or decrease in the original grant amount).

Additionally, the databases for the NEH and NSF were reviewed for unique grant awards that did not appear in the U.S. Department of the Treasury database. Once these grants were compared by unique award codes, it was determined that the Treasury database captured all relevant grant awards.

Due to the scale and complexity of the data, it was not possible to review each grant award to determine applicability or to review the details of the thousands of grants identified and sorted out by this process.

(3) Private and Educational Organizations

(A) Overview and Background

In addition to the grants awarded by state and federal agencies, some private organizations and educational institutions support archaeological work and similar endeavors through grant funding. Although educational institutions are heavily funded by state and federal government, grant funding data for these organizations were combined with information collected from private foundations to differentiate it from direct government funding and to reflect the quasi-independent and cooperative nature of educational organizations.

Grants awarded by private organizations and educational institutions fund field work, research, education opportunities, arts and culture, technical assistance, and more. However, only projects determined to be related to archaeology and cultural resources are considered as part of the analysis of economic impacts.

Based on grant funding opportunities identified by project stakeholders, and web searches, the following foundations and institutions were investigated for grant information:

i. Archaeological Institute of America (AIA);
ii. Andrew W. Mellon Foundation;
iii. Colorado Plateau Cooperative Ecosystem Studies Unit (CPCESU);
iv. Curtiss T. & Mary G. Brennan Foundation;
v. Henry Luce Foundation;
vi. Rocky Mountain Cooperative Ecosystem Studies Unit (RMCESU);
vii. Rust Family Foundation; and
viii. Wenner-Gren Foundation.

Other organizations that award grants for archaeological work were studied, but many were found to focus on archaeological work in other parts of the country or world. Of the organizations reviewed, not all provide records on grant awards. Therefore, the list of organizations contacted, above, does not reflect the limited number of institutions that provided grant award information for this report.

(B) Summary of Activity

Although available grant data from private foundations and educational institutions does not paint a complete picture of the impact of private philanthropy, the effect of these funding sources are still significant. Between 1984 and 2019, Colorado has seen an investment of almost $14.5 million in private and institutional grants toward archaeology work—the vast majority coming since 2013, when data was more available. Table 4.5, below, shows the grant award totals from those organizations that provided data for this report. In some cases, data shows grant awards but not the value of those awards.

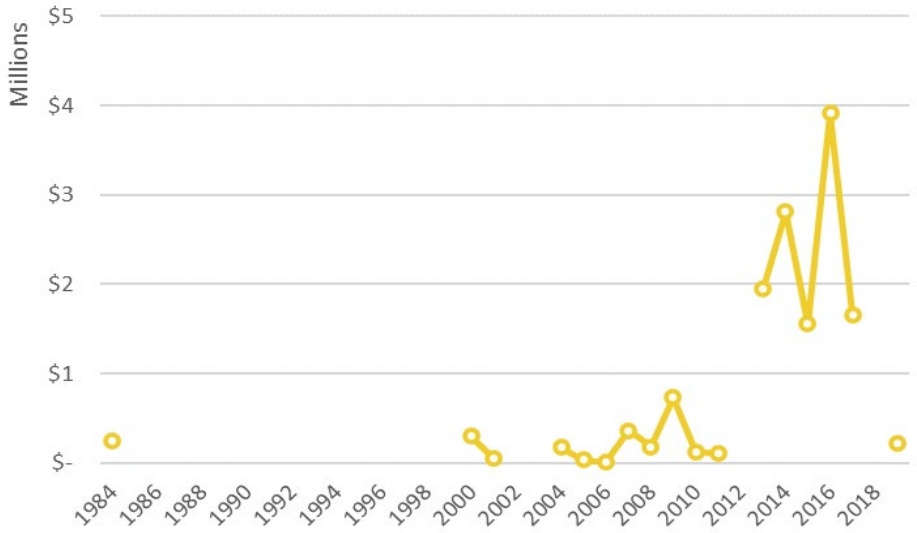
TABLE 4.5 PRIVATE/INSTITUTIONAL GRANT AWARDS (BY ORGANIZATION)

ORGANIZATION	GRANT AWARDS	AWARD VALUE
AIA	6	--
Andrew W. Mellon Foundation	5	$6,257,750
CPCESU	44	$1,434,206
Henry Luce Foundation	5	$836,321
RMCESU	40	$5,929,414
Rust Family Foundation	3	$4,754
Wenner-Gren Foundation	7	--
Total	**110**	**$14,462,445**

Notes: All values adjusted for inflation (August 2019)

Figure 4-3, below, shows the year-to-year change in grant funding for archaeology work in Colorado from these private and institutional organizations. This figure also shows the more complete nature of grant data in recent years.

Figure 4-3 Private and Institutional Grant Awards (1984-2019)



(C) Methodology

Due to the independent nature of each of the organizations reviewed for archaeology-related grant funding opportunities, a different methodology was required to collect data for each foundation or institution. Some organizations provided transparent, searchable databases of all grants awarded and grant amounts, other organizations provided very little information, which is reflected in the data collected. Our data-collection efforts for each organization are described below.

i. Andrew W. Mellon Foundation

The Andrew W. Mellon Foundation funds programs and research focused on the humanities. The Foundation makes grants in four program areas: Higher Education and Scholarship in the Humanities; Arts and Cultural Heritage; Scholarly Communications; and International Higher Education and Strategic Projects. Using the advanced search function on the Foundation's grants database, a list of all grants awarded was filtered to show only those awarded in Colorado, regardless of the program area. The project descriptions for each of the 117 grant awards were then reviewed for relevance. Of those, only five grant awards were determined to be related to archaeology and cultural resources. The remaining grants were determined to be unrelated to archaeology, cultural resources, Colorado-based grantees, or Colorado project locations. Most grants awarded were for scholarships, university humanities programs, or arts and culture programs unrelated to archaeology.

ii. Archaeological Institute of America (AIA)

The AIA is the oldest and largest archaeological organization in the United States and supports and promotes archaeological research and its dissemination. Therefore, the AIA

offers a variety of scholarships, fellowships, and grants for excavation, research, publication, and site preservation.

The AIA does not provide grant award data on any publicly accessible website and did not return requests for providing such data.

iii. Colorado Plateau Cooperative Ecosystem Studies Unit (CPCESU)

The Colorado Plateau Cooperative Ecosystem Studies Unit (CPCESU) is a cooperative venture among universities, NGOs, and federal agencies in the Colorado Plateau Region. The Northern Arizona University serves as host to CPCESU—one of 17 biogeographic regions served by a distinct Cooperative Ecosystem Studies Unit (CESU). The overriding goal of the CESU Network is to improve the scientific base for managing federal land by providing resource managers with high-quality research, technical assistance, and education.

Using the CPCESU website database, grant information was reviewed and organized by federal agency or non-federal partner (e.g., Crow Canyon Archaeological Center). This list was reviewed for relevance based on the location of the awardee or nature of the project description. Web searches were conducted when necessary to understand the location or nature of a project. In total, 44 grant awards were determined to be relevant to this report.

iv. Curtiss T. & Mary G. Brennan Foundation

The Curtiss T. & Mary G. Brennan Foundation is a non-profit organization, founded to provide funding support for archaeological field research, emphasizing in regions of the world in which early centers of complex culture or civilization originated. The Foundation supports field archaeology, with an emphasis on excavation. Post-excavation analysis, processing, publication, and other archaeological activities supportive of field research are funded in connection with previously funded field projects.

The Curtiss T. and Mary G. Brennan Foundation does not provide grant award data on any publicly accessible website and did not return requests for providing such data.

v. Henry Luce Foundation

The Henry Luce Foundation seeks to enrich public discourse by promoting innovative scholarship, cultivating new leaders, and fostering international understanding. The Foundation advances its mission through grantmaking and leadership programs in the fields of Asia, higher education, religion and theology, art, and public policy.

Using the Foundation’s online grant database, 92 grants were awarded to efforts in Colorado, but only four grants were awarded for work related to archaeology (or closely related anthropology projects). Web searches were conducted on each grant award to determine if the purpose of the project was tied to archaeology or another relevant discipline.

vi. Rocky Mountain Cooperative Ecosystem Studies Unit (RMCESU)

The Rocky Mountains Cooperative Ecosystem Studies Unit (RMCESU) is a cooperative venture between 26 leading academic programs and NGOs in the Rocky Mountain Region and ten federal agencies. The University of Montana serves as host to RMCESU—one of 17 biogeographic regions served by a distinct CESU. The overriding goal of the CESU

Network is to improve the scientific base for managing federal land by providing resource managers with high-quality research, technical assistance, and education.

Using the RMCESU website database, grant information for all available years (2014-2017) was reviewed and organized by federal agency or non-federal partner (e.g., Colorado State University). This list was reviewed for relevance based on the location of the awardee or nature of the project description. Web searches were conducted when necessary to understand the location or nature of a project. In total, 40 grant awards were determined to be relevant to this report.

vii. Rust Family Foundation

The Rust Family Foundation supports a wide range of philanthropic causes. Since 2015, this includes an emphasis on projects in archaeology and related research and exploration. Information provided by the Foundation online indicated a single archaeology grant was awarded for work in Colorado.

viii. Wenner-Gren Foundation

The Wenner-Gren Foundation for Anthropological Research, Inc. is a private foundation dedicated to the advancement of anthropology throughout the world. It is one of the major international funding sources for anthropological research through grant, fellowship, conference, and capacity-building programs. The Foundation works to support all branches of anthropology and closely related disciplines concerned with human biological and cultural origins, development, and variation.

Using the Foundation's online database of past grant awards, seven grant awards were determined to be relevant to the archaeological focus of this report. However, the database does not include any information on the value of grant awarded and the Foundation declined to provide any financial data. Web searches were conducted on each grant award to attempt to find financial information, but these efforts were unsuccessful.

(4) Cumulative Economic Impacts of Archaeology Projects

(A) Overview and Background

This section summarizes the cumulative economic impacts of archaeology projects that have taken advantage of SHF, federal, institutional, or private grants, as detailed in the previous three sections. Economic impacts were estimated as direct and indirect economic impacts across the state using RIMS II (Regional Input-Output Modeling System) multipliers. It should be noted that the true economic impacts of archaeology are probably higher. The impacts detailed here are just those generated from established grant programs that share data.

The year-to-year tracking of data varies between grant awarding agencies and organizations. In general, grant funding from federal agencies includes 2002 to 2020, grant data from SHF includes 1993 to 2019, and private and institutional organization grant awards span 1984 to 2019. In all cases, data for more recent years was more complete.

(B) Summary of Activity

In total, the three grant-funding categories have contributed over $185 million (including matching funds for SHF grants) in direct impact into the state economy. Following the methodology for determining economic impact in Section 4.2A(2)(C), below, the resulting

total economic impact to the state is over $410 million. This reflects an inflation-adjusted total from all years where grant data is available (as early as 1984 for private and institutional organizations, but as late as 2002 for federal agencies).

TABLE 4.6 ECONOMIC IMPACT OF GRANT AWARDS [1]

SOURCE	DIRECT IMPACT [2]	INDIRECT IMPACT [3]	TOTAL IMPACT [4][6]
SHF [5]	$35,143,987.28	$42,723,139.58	$77,867,126.86
Federal	$135,576,981.99	$164,815,513.92	$300,392,495.91
Private/ Institutional	$14,462,444.98	$17,851,415.86	$32,043,860.84
Total [6]	**$185,183,414.25**	**$225,120,069.37**	**$410,303,483.62**

Notes: [1] All values adjusted for inflation (August 2019)
[2] The total value of all grant awards (plus matching funds for SHF grants). Assumed to be expenditures directly associated or purchased for use in the project.
[3] Expenditures associated with the goods and services of industries associated with the project.
[4] The cumulative total industry output as a result of the direct and indirect impact.
[5] SHF grant totals include matching funds.
[6] Totals may not sum due to rounding and adjustments for inflation.

(C) Methodology

To generate data on the economic effects of archaeology projects throughout Colorado, Colorado-specific versions of RIMS II regional multipliers, obtained from the U.S. Bureau of Economic Analysis (BEA), were used. RIMS II multipliers, developed by the BEA, are a widely used tool for estimating the economic impact of one industry on the entire economy of a particular region. The multipliers generate data on total economic impact, based upon the effects that occur when one activity generates money, and that money "ripples" directly and indirectly in other industries and eventually through the entire regional economy.

Any economic activity, such as an archaeological dig or analysis of artifacts, generates a direct impact, which consists of the actual purchases of labor and materials for the project. For this study, the "direct impact" of a project is the total amount of funds used on that project—assumed to be the same value as the grant award and any matching funds. For example, the direct impact for a project receiving a SHF grant would include the grant itself and any match provided by the grant recipient.

The RIMS II multipliers calculate the "indirect" impact of this direct activity. Indirect impacts consist of the purchase of goods and services by the various industries that produce the items for the original, direct activity. For example, a cultural resource management contractor working on an archaeology project funded by an SHF grant may rent or purchase excavation equipment needed from a local retailer. This purchase is a direct impact. That store, in turn, is able to pay a salary to its employees thanks in part to the business that was generated from the SHF grant. The purchase of groceries by an employee of the local retailer is an example of an indirect impact.

RIMS II multipliers also estimate the amount of household economic activities among employees either directly or indirectly involved with the original economic impact. Household economic activities generally reflect local consumer purchases and general household

expenditures. For example, the RIMS II multipliers would consider the economic impacts of project spending on the employment of a worker in a factory that manufactured tools used on the archaeology site. Medical services purchased by the contractor who oversaw the archaeology dig would also be captured as an indirect impact.

Total economic impact is based on the cumulative industry output in Colorado because of the direct and indirect impacts on the economy.

RIMS II multipliers were used in order to provide the most up-to-date account of the impacts of economic activity in specific sectors on the state's economy. RIMS II multipliers are available in two types (Type I and Type II). For this analysis, Type II multipliers (2012/2018) are used because they account for induced impacts of economic activity, in addition to the interindustry effect (i.e., the effect of an economic activity across all industries). The induced impact is the spending of workers whose earnings are affected by the economic activity. This impact is often called the household-spending effect.[1]

The diverse nature of activities associated with archaeology projects required the use of more than one multiplier to determine the economic impacts of archaeology projects. In consultation with the SHF and Crow Canyon Archaeological Center, four multipliers were identified that best reflect the breadth of work done on a typical grant-funded archaeology project. They are:

- "architectural, engineering, and related services" (industry number: 541300);
- "environmental and other technical consulting services" (industry number: 5416A0);
- "maintenance and repair" (industry number: 23030A); and
- "scientific research and development services" (industry number: 541700).

Table 4.7, below, shows the relevant multipliers used for the report. Note that since the direct impacts were calculated using inflation-adjusted 2019 dollars, the indirect and total impacts reported in this section will also be in inflation-adjusted 2019 dollars.

[1] Regional Input-Output Modeling System (RIMS II) User's Guide. Bureau of Economic Analysis (BEA).

TABLE 4.7 RIMS II MULTIPLIERS (2012/2018): ALL COLORADO COUNTIES (TYPE II)

IND. CODE [1]	INDUSTRY NAME	FINAL DEMAND				WEIGHT [6]
		OUTPUT ($) [2]	EARNINGS ($) [3]	EMPLOYMENT (JOBS) [4]	VALUE ADDED ($) [5]	
23030A	Maintenance and repair	2.1424	0.6288	12.5933	1.0812	40%
541300	Architectural, engineering, and related services	2.2361	0.8544	14.4439	1.3463	20%
5416A0	Environmental and other technical consulting services	2.3421	1.0318	22.0878	1.4028	20%
541700	Scientific research and development services	2.2153	0.7637	12.3278	1.2673	20%
Weighted Average		**2.2157**	**0.7815**	**14.8092**	**1.2358**	

Notes: [1] Multipliers are based on 2012 U.S. Benchmark Input-Output (I-O) data and 2018 regional data, which represents the most current data available.
[2] Final Demand Output represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
[3] Final Demand Earnings represents the total dollar change in earnings of households employed by all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
[4] Final Demand Employment represents the total change in number of jobs that occurs in all industries for each additional 1 million dollars of output delivered to final demand by the industry corresponding to the entry. Because the employment multipliers are based on 2018 data, the output delivered to final demand should be in 2018 dollars.
[5] Final Demand Value Added represents the total dollar change in value added that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
[6] Weight represents the relative weight provided to each industry to derive a weighted average for each multiplier. This weight was determined in consultation with SHF and professional archaeologists to represent the typical average value of each activity on the typical average project.
Source: Bureau of Labor Statistics (BLS) Occupational Employment Statistics, 2019

These multipliers were developed specifically for the defined region (all counties in Colorado) and represent an average for that region. The statewide nature of archaeology work (SHF has provided grants to 49 counties in addition to statewide and regional projects) suggests that defining a statewide region is necessary to capture the area where employees are spending their money. Multipliers are not indicative of the specific dollar impact of a particular activity or project. Because there have been some changes in these relationships over time, there is bound to be some slight error in the RIMS II multipliers, but generally not greater than 10 percent. Guidance from the Colorado State Demography Office notes that the RIMS II multipliers tend to provide the most conservative estimates when compared to other common models like IMPLAN or EMSI.

B. CULTURAL RESOURCE MANAGEMENT

(1) Overview and Background

Cultural Resource Management (CRM) broadly refers to efforts to minimize the impacts of development on cultural resources like historic structures, archaeological sites, and cultural landscapes. For any project on federal land or tied to federal funding, CRM is required by law (see Section 4.2C) and often requires the cooperation of government agencies and the private sector. Private CRM consulting firms are commonly used to support federal agencies.

CRM is considered a sub-discipline of archaeology. Because CRM entails the discovery, documentation, and preservation of archaeological sites, as well as knowledge and application of local, state, and federal preservation law, it requires the work of qualified professional archaeologists.

Professional archaeologists and CRM firms have a direct impact on the Colorado economy through employment, employee wages, and business operations, but also impact the state and local economy indirectly because of employee spending.

In *The Economic Contributions of Cultural Resources in Southwest Colorado*, a report prepared by Information Services, Inc. and Crow Canyon Archaeological Center, the impact of CRM activity and employment in the Archuleta, Dolores, La Plata, Montezuma, and San Juan counties was studied. In this region alone—albeit one that is home to cultural resources as significant as Mesa Verde National Park, Canyons of the Ancients National Monument, Chimney Rock National Monument, Hovenweep National Monument, and Yucca House National Monument—the total direct and indirect impact of employment at CRM firms was almost $29 million in 2016. This report uses a different methodology, as detailed in this section.

(2) Summary of Activity

(A) Total Economic Impact

The economic impact of employment in CRM from 2012 to 2019 was estimated to result in almost $109 million in direct wages to professional archaeologists and anthropologists (not including academic archaeologists and anthropologists). Table 4.8, below, summarizes the resulting benefits to the state economy, which includes almost 1,750 jobs created, almost $85 million in earnings for other households, over $132 million in indirect impact, and an estimated total impact of almost $241 million. The table also includes an annual average for each of these metrics for comparison.

TABLE 4.8 ECONOMIC IMPACT OF PROFESSIONAL ARCHAEOLOGIST AND ANTHROPOLOGIST WAGES (2012-2019)

YEAR	DIRECT IMPACT	INDIRECT IMPACT	TOTAL IMPACT	JOBS CREATED	EARNINGS
2012	$12,775,501.51	$15,530,666.17	$28,306,167.68	218	$9,984,054.43
2013	$15,150,339.70	$18,417,661.96	$33,568,001.66	254	$11,839,990.47
2014	$14,279,657.04	$17,359,207.88	$31,638,864.92	234	$11,159,551.98
2015	$13,155,038.15	$15,992,053.67	$29,147,091.82	216	$10,280,662.31

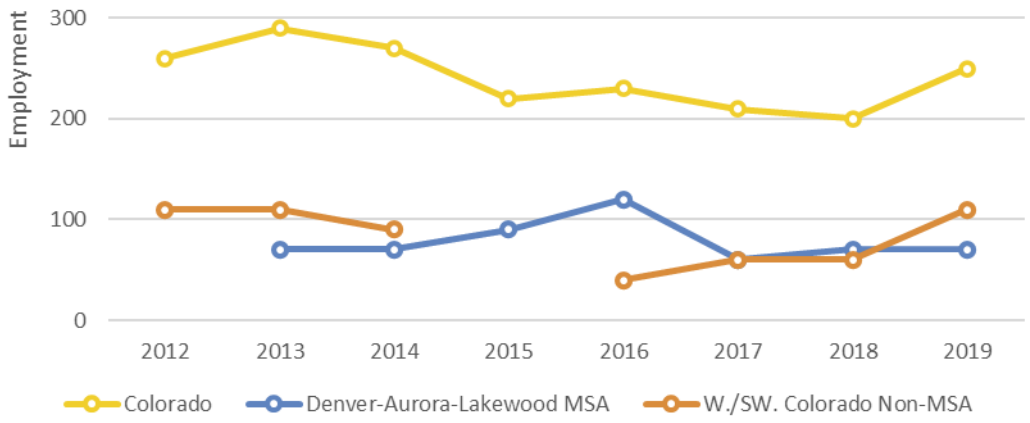
2016	$14,412,625.56	$17,520,852.39	$31,933,477.95	233	$11,263,466.88
2017	$12,886,752.69	$15,665,909.77	$28,552,662.45	202	$10,070,997.22
2018	$12,339,549.04	$15,000,696.19	$27,340,245.23	189	$9,643,357.58
2019	$13,648,961.62	$16,592,496.68	$30,241,458.30	202	$10,666,663.51
TOTAL	**$108,648,425.31**	**$ 132,079,544.71**	**$240,727,970.01**	**1748**	**$84,908,744.38**
Average	*$13,581,053.16*	*$16,509,943.09*	*$30,090,996.25*	*219*	*$10,613,593.05*

Note: All values adjusted for inflation (August 2019)
Source: Bureau of Labor Statistics (BLS) Occupational Employment Statistics, 2019

(B) Total Employment

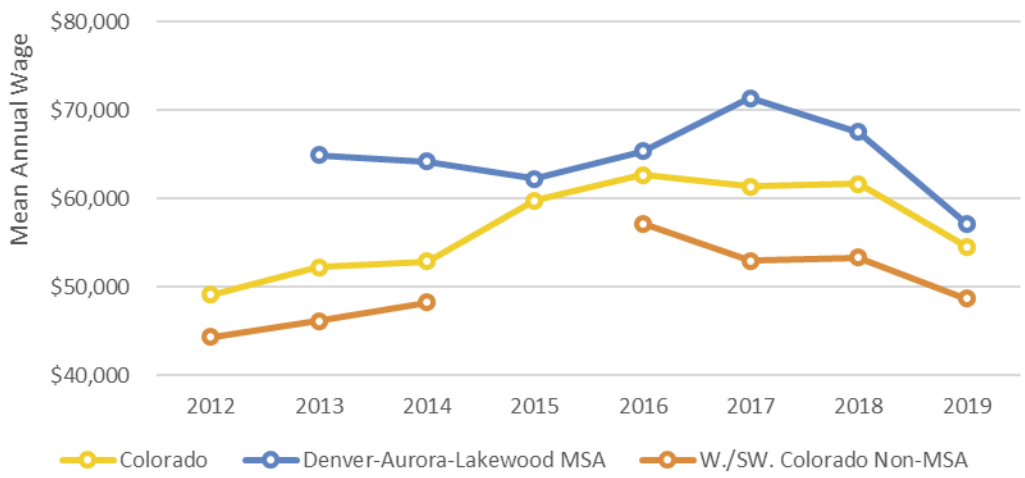
Estimates for annual employment vary from year to year, reflecting changes to the greater economy. Figure 4-4, below shows the change in archaeologist and anthropologist employment in Colorado since 2012. Additionally, the figure shows the estimated employment in this sector in the Denver-Aurora-Lakewood Metropolitan Statistical Area (MSA), which encompasses Adams, Arapahoe, Broomfield, Clear Creek, Denver, Douglas, Elbert, Gilpin, Jefferson, and Park counties. The only other region with detailed estimates is the Western Colorado Nonmetropolitan Statistical Area (Non-MSA), which was used from 2012 to 2014, and the Southwest Colorado Non-MSA, which was used from 2016 to 2019, and encompasses Archuleta, Chaffee, Delta, Dolores, Fremont, Gunnison, Hinsdale, La Plata, Montezuma, Montrose, Ouray, San Juan, and San Miguel counties. This change in Non-MSA names is also a change in the area included in the region—although most of the counties are the same. Over time BLS changes the boundaries or MSAs and Non-MSAs to reflect economic and demographic changes. The BLS does not provide any data on the other MSA or Non-MSA regions in Colorado, which contribute to the overall total employment in the state and are reflected in the estimated statewide total.

Figure 4-4 Employment of Professional Archaeologists and Anthropologists



Inflation-adjusted (August 2019) estimates for the mean annual wage of workers employed as anthropologists and archaeologists are detailed in Figure 4-5, below. The description of the MSA and Non-MSA regions is the same as provided above.

Figure 4-5 Mean Annual Wages of Professional Archaeologists and Anthropologists



(3) Methodology

(A) RIMS II Multipliers

To model the full economic impacts of cultural resource management in Colorado, the Bureau of Economic Analysis (BEA) Regional Input-Output Modeling System (RIMS II) was used. Type II multipliers (2012/2018) are used because they account for induced impacts of economic activity, in addition to the interindustry effect (i.e., the effect of an economic activity across all industries) as shown in Table 4.9, below.

Using the estimated total wages for these professions, the direct economic impact was calculated by using RIMS II multipliers for the industries in which archaeologists and anthropologists are employed and the type of work completed on the typical archaeology project.

TABLE 4.9 RIMS II MULTIPLIERS (2012/2018): ALL COLORADO COUNTIES (TYPE II)

IND. CODE [1]	INDUSTRY NAME	FINAL DEMAND				WEIGHT [6]
		OUTPUT ($) [2]	EARNINGS ($) [3]	EMPLOYMENT (JOBS) [4]	VALUE ADDED ($) [5]	
23030A	Maintenance and repair	2.1424	0.6288	12.5933	1.0812	40%
541300	Architectural, engineering, and related services	2.2361	0.8544	14.4439	1.3463	20%

TABLE 4.9 RIMS II MULTIPLIERS (2012/2018): ALL COLORADO COUNTIES (TYPE II)

IND. CODE [1]	INDUSTRY NAME	FINAL DEMAND				WEIGHT [6]
		OUTPUT ($) [2]	EARNINGS ($) [3]	EMPLOYMENT (JOBS) [4]	VALUE ADDED ($) [5]	
5416A0	Environmental and other technical consulting services	2.3421	1.0318	22.0878	1.4028	20%
541700	Scientific research and development services	2.2153	0.7637	12.3278	1.2673	20%
Weighted Average		2.2157	0.7815	14.8092	1.2358	

Notes: [1] Multipliers are based on 2012 U.S. Benchmark Input-Output (I-O) data and 2018 regional data, which represents the most current data available.
[2] Final Demand Output represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
[3] Final Demand Earnings represents the total dollar change in earnings of households employed by all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
[4] Final Demand Employment represents the total change in number of jobs that occurs in all industries for each additional 1 million dollars of output delivered to final demand by the industry corresponding to the entry. Because the employment multipliers are based on 2018 data, the output delivered to final demand should be in 2018 dollars.
[5] Final Demand Value Added represents the total dollar change in value added that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
[6] Weight represents the relative weight provided to each industry to derive a weighted average for each multiplier. This weight was determined in consultation with SHF and professional archaeologists to represent the typical average value of each activity on the typical average project.
Source: Bureau of Labor Statistics (BLS) Occupational Employment Statistics, 2019

(B) BLS Employment Data and Analysis

Professional employment in archaeology and CRM is difficult to determine without a comprehensive survey of private and public sector employers and independent professionals. The Bureau of Labor Statistics (BLS) annually estimates employment and wage across almost 800 occupations, including "Anthropologists and Archaeologists" and "Anthropology and Archaeology Teachers, Postsecondary" through BLS's Occupational Employment Statistics (OES). For this section, only employment estimates for professional (i.e., non-academic) anthropologist and archaeologist were used. Employment estimates for post-secondary educators in anthropology and archaeology are included in Section 4.4B, *Archaeology Education*.

OES estimates are based on a semiannual survey of 180,000 to 200,000 establishments (not including self-employed individuals) and are available for the nation, individual states, or metropolitan and nonmetropolitan areas when possible. The OES estimates and survey are approximations based on a longstanding methodology, but do not provide an archaeology-specific estimate for employment or wages.

Using OES estimates on the number of employees and the mean annual wage of those employees in the state, the total annual wages for professional anthropologists and archaeologists in Colorado were determined. The estimated total annual wages for the industry are detailed in Figure 4-6 and Table 4.10, below.

Figure 4-6 Total Annual Wages for Professional Archaeologists and Anthropologists

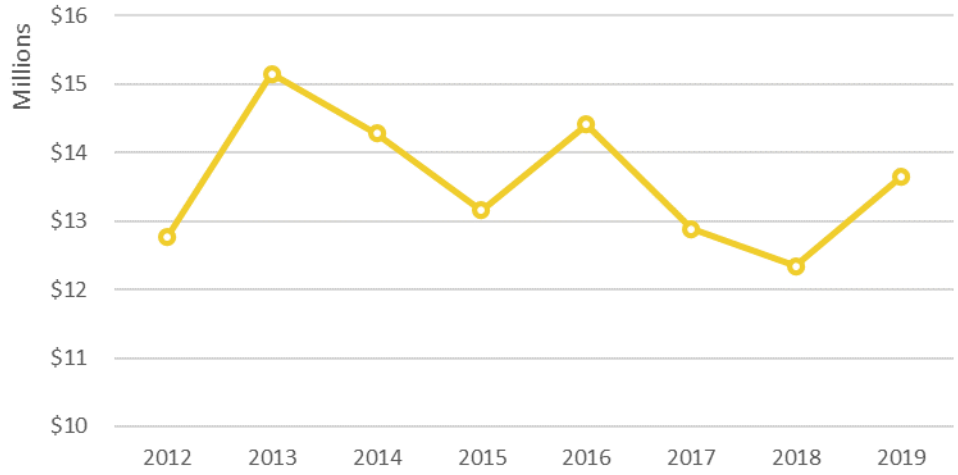


Table 4.10, below, also shows the mean annual wage and annual employment for professional archaeologists and anthropologists (exclusive of those employed in higher education) in Colorado. The multiplication of these values provides the total mean annual wage for the CRM industry direct earnings (the dollar change in earnings of households employed across all industries) and direct employment (the total change in number of jobs across all industries) that is estimated to result from the employment and wages of professional archaeologists and anthropologists. These values were determined using RIMS II multipliers provided by the BEA.

TABLE 4.10 TOTAL PROFESSIONAL EMPLOYMENT WAGES (2012-2019)

YEAR	MEAN ANNUAL WAGE	EMPLOYMENT (JOBS)	TOTAL MEAN ANNUAL WAGE
2012	$49,136.54	260	$12,775,501.51
2013	$52,242.55	290	$15,150,339.70
2014	$52,887.62	270	$14,279,657.04
2015	$59,795.63	220	$13,155,038.15
2016	$62,663.59	230	$14,412,625.56
2017	$61,365.49	210	$12,886,752.69
2018	$61,697.75	200	$12,339,549.04
2019	$54,595.85	250	$13,648,961.62

TABLE 4.10 TOTAL PROFESSIONAL EMPLOYMENT WAGES (2012-2019)			
YEAR	MEAN ANNUAL WAGE	EMPLOYMENT (JOBS)	TOTAL MEAN ANNUAL WAGE
TOTAL	$454,385.01	1,930	$108,648,425.31

Note: All values adjusted for inflation (August 2019)
Source: Bureau of Labor Statistics (BLS) Occupational Employment Statistics, 2019

(C) CRM Firm Survey

To supplement the BLS's OES estimates, a project-specific survey was employed to collect more detailed employment and economic activity data. The survey was developed and distributed to a custom mailing list comprised of the History Colorado Directory of Cultural Resource Professionals and Historic Preservation Service Specialists and the American Cultural Resources Association (ACRA) Member Directory (for those who self-selected that they do work in Colorado). The informational email with prominent links to the survey was sent to 180 individuals on August 16, 2019, with a deadline to respond by August 31. Of the 180 contacts, the email was successfully delivered to 161 inboxes while 19 emails were not delivered, perhaps because the listed contact information was out-of-date. A total of 67 people opened the email (41.6%), but the survey was completed by just five individuals at four unique firms (two people from the same firm completed the survey).

To increase participation, a second email was distributed to the same mailing list on September 23, 2019, with a deadline of September 30. Of the 180 contacts, the email was successfully delivered to 156 inboxes while the rest were not delivered due to previous opt-outs from the mailing list, out-of-date contact information, or other reasons. A total of 54 people opened the email (34.6%) and just five individuals completed the survey.

The following ten questions were used for each survey. Each question also included a rationale to explain to the respondent why each question was being asked and why it was important. This approach seemed especially important for questions that required disclosure of financial or proprietary information. The ten questions on the survey were:

1. Name: What is the name of your firm? This question will be used to avoid duplicate responses.
2. Employees: How many employees at your firm are primarily employed in anthropology or archaeology work in Colorado in 2018? Please include part-time and temporary employees as approximate fractions of a full-time employee (e.g., 4.75 for 4 full-time, 1 half-time, and 1 temporary [3-month] employee). This question will be used to assess the impact of CRM firms on employment in Colorado.
3. Wages: What is the approximate COMBINED salary of all employees at your firm that work in anthropology or archaeology in Colorado in 2018? This information will be aggregated statewide for the report and kept confidential. This question will be used to identify the direct and indirect economic impact of CRM employees in Colorado without requiring disclosure of overly proprietary information.
4. Out-of-State Firms: If your firm is not located in Colorado, approximately how many total combined days were your firm's employees working on anthropology or archaeology projects in Colorado in 2018? This question will be used to identify the

direct and indirect economic impact of CRM firms that are not located in Colorado, but which are engaged in CRM activities in the state.

5. Cost of Archaeology Work: Not including employee salaries, what is the average amount per day that your firm assumes for the cost of doing archaeological fieldwork or travel for archaeological work (airfare, lodging, car rentals, meals, etc.)? On average, how many days per year does your firm conduct archaeological fieldwork or travel for archaeological work in Colorado? This question will be used to understand the economic impact of fieldwork and business travel in Colorado.
6. Grant-Funded Archaeology Work: What is the value of archaeology work being done by your firm under grants from History Colorado (SHF) or another state or federal agency? This question will be used to understand the economic impact of grant funding in Colorado.
7. Contact: Who is the best contact person for follow-up questions? Please provide a name, phone number, and email address. This question will be used to allow us to clarify a response or for follow-up questions.

Based on the poor response rate to the survey of CRM firms, OES data was used to determine employment and wages in the CRM industry. However, the data collected by the surveys is included here to supplement the overall economic analysis. In the data tables below, firms that responded to the survey, but not the specific question, are not included. Where multiple responses were provided by the same firm, the more detailed information was used (the same survey response was used for consistency). Table 4.11, below, details employment at CRM firms that responded to the survey.

TABLE 4.11 EMPLOYMENT AT SELECTED CRM FIRMS

FIRM	2015	2016	2017	2018
Trinidad State Junior College Louden-Henritze Archaeology Museum	1.5	1.5	1.75	1.75
Applied Cultural Ecology, LLC	0	0	0	0
AK Pioneer Consulting	2	2	2	2
Metcalf Archaeological Consultants	43	36	38	36
Burns & McDonnell	2	1	1	1
Stratified Environmental & Archaeological Services, LLC	6	5	5	6
Espinoza Cultural Services	8	10	12	18

Table 4.12, below, shows total combined wages at CRM firms that provided data in response to the online survey.

TABLE 4.12 TOTAL WAGES AT SELECTED CRM FIRMS				
FIRM	2015	2016	2017	2018
Ron Winters, Archaeologist	0	0	0	0
Applied Cultural Ecology, LLC	0	0	0	0
AK Pioneer Consulting	$30,000	$30,000	$50,000	$60,000
Metcalf Archaeological Consultants	$2,555,000	$1,858,000	$1,884,000	$1,861,000
Burns & McDonnell	$120,000	$80,000	$80,000	$80,000
Stratified Environmental & Archaeological Services, LLC	$20	$20	$20	$22

Finally, Table 4.13 provides estimates on the cost of conducting fieldwork at the CRM firms that responded to the survey.

TABLE 4.13 COST OF ARCHAEOLOGY FIELDWORK AT SELECTED CRM FIRMS			
FIRM	COST PER DAY (AVG.)	DAYS PER YEAR (AVG.)	COST OF FIELDWORK PER YEAR
Ron Winters, Archaeologist	$150	3	$450
AK Pioneer Consulting	$275	50	$13,750
Metcalf Archaeological Consultants	$1,100	900	$990,000
Burns & McDonnell	$250	250	$62,500
Stratified Environmental & Archaeological Services, LLC	$100	200	$20,000

C. STATE AND FEDERAL OVERSIGHT

(1) Overview and Background

The National Historic Preservation Act of 1966 (NHPA) establishes policy for all federal agencies to work in partnership with state, local, and tribal governments, and organizations and individuals, to ensure the impact of contemporary activities on archaeological and historic resources is considered.

A key part of the NHPA is Section 106, which requires that the responsible federal agency “take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register” before issuing any licenses or approving any federal funds for the project.

The NHPA does not mandate that all historic and cultural resources be preserved in the same way, or even require preservation of resources, but it does establish the regulations and

procedures for how the federal government considers historic and cultural resources during federal undertakings and projects that require federal approval or funding.

As part of the Section 106 review process, federal agencies must provide the opportunity to comment on such projects prior to the agency's decision on them. Consultation with and review by State Historic Preservation Officers (SHPO) and Tribal Historic Preservation Officers (THPO) is another key step in the review process.

SECTION 106
"The head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation established under Title II of this Act a reasonable opportunity to comment with regard to such undertaking."

Following consideration of public comments, SHPO and THPO consultation, and documentation of potential impacts and alternatives the agency may make a determination. The NHPA does not always require preservation of historic or cultural sites—although that is often preferred. In some cases, the potential for impacting historic properties is deemed unavoidable and a project is still permitted.

Section 106 review is necessarily comprehensive because it allows the public, local governments, and tribal leaders to engage in the process and allows exploration of alternatives and mitigation measures that might avoid or reduce impacts on historic and cultural resources. In the end, the federal agency responsible for Section 106 review assumes responsibility for the consequences of the projects they carry out, approve, or fund on historic properties and are publicly accountable for their decisions.

While Section 106 is the most notable regulatory oversight process, Section 110 of the NHPA is also important. Section 110 requires federal agencies to have historic preservation programs and work to identify and protect historic and cultural resources under their direct control or ownership. The National Trust for Historic Preservation notes that Section 110 is less of a procedural regulation than Section 106, but instead guides federal historic preservation programs. As a result of the more open-ended nature of Section 110 and ongoing budgetary constraints at many agencies, Section 110 review is less common. Instead, a federal agency may wait for a specific project to trigger a mandatory Section 106 process. Despite this, many Section 110 reviews are completed each year in Colorado.

Along with Section 106 and Section 110, the Bureau of Land Management (BLM) Cultural Resource Use Permit, Colorado State Register Act, and other State of Colorado permits provide key regulatory oversight processes. Table 4.14, below details each of the five oversight processes being examined by this report. Due to data limitations, this is not an exhaustive list of all archaeology-related permits. Future iterations of this report should further explore the economic value of conformance with other regulatory oversight processes—notably the Archaeological Resources Protection Act (ARPA) and the Native American Graves Protection and Repatriation Act (NAGPRA).

TABLE 4.14 ARCHAEOLOGY-RELATED STATE AND FEDERAL REGULATORY OVERSIGHT PROCESSES		
PERMIT/REVIEW TYPE	**DESCRIPTION**	**REGULATORY APPLICATION**
BLM Cultural Resource Use Permit	Required for professional cultural resource investigations on BLM land.	Federal
Section 106	Required for any activities on federal land or receiving federal funds that could impact cultural resources	Federal
Section 110	Program to guide federal agencies in the identification, evaluation, nomination, and management of historic resources under agency care or affected by agency actions	Federal
State Permit	Required for any activities on land owned by the State (or any political subdivision of the State)	Colorado
State Register Act	Required for any State action that may affect a nominated or listed State Register property	Colorado

(2) Summary of Activity

Table 4.15, below shows the estimated economic impact of state and federal oversight of cultural resources in Colorado based on the economic activity generated by the review and permitting processes for the BLM Cultural Resource Use Permit, Section 106, Section 110, state permits, and State Register Act review.

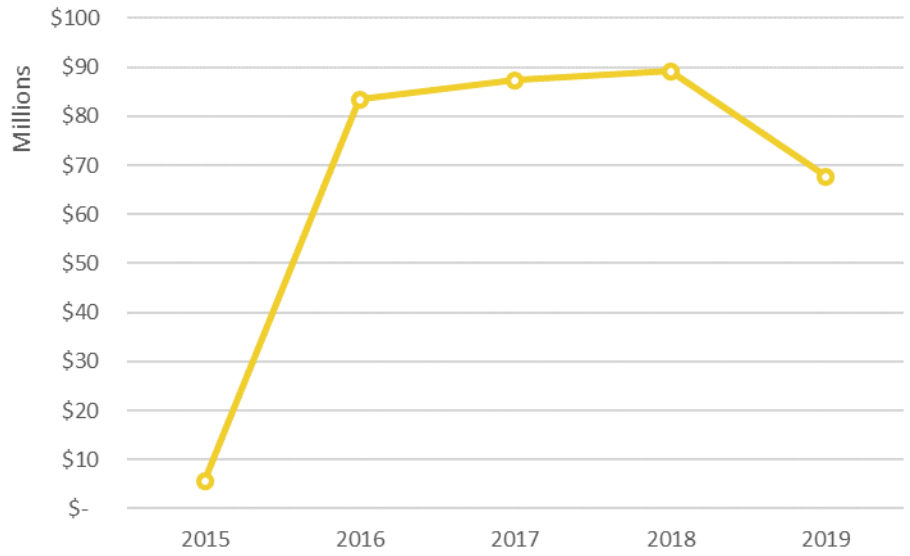
The overall estimated direct impact of these activities between 2015 and 2019 is over $146 million, which has created over 2,500 jobs and generated over $131 million in labor earnings. The resulting indirect impact is almost $187 million with a total impact of over $333 million over the five-year period. As detailed and described in Section 4.2A(2)(C), Methodology, the estimated economic impact is based on limited available data—especially data on costs of compliance—and several educated assumptions were made on the value of the average review process for each permit.

TABLE 4.15 ECONOMIC IMPACT OF ARCHAEOLOGY-RELATED STATE AND FEDERAL REGULATORY OVERSIGHT PROGRAMS					
YEAR	**DIRECT IMPACT**	**INDIRECT IMPACT**	**TOTAL IMPACT**	**JOBS CREATED**	**EARNINGS**
2015	$2,472,085	$3,161,055	$5,633,140	43	$2,219,314
2016	$36,573,653	$46,766,730	$83,340,384	629	$32,833,997
2017	$38,292,142	$48,964,163	$87,256,305	659	$34,376,771
2018	$39,099,040	$49,995,943	$89,094,983	673	$35,101,163
2019	$29,720,000	$38,002,964	$67,722,964	511	$26,681,130
TOTAL	$146,156,921	$186,890,855	$333,047,776	2,515	$131,212,376

Note: All values adjusted for inflation (August 2019)
Source: Bureau of Labor Statistics (BLS) Occupational Employment Statistics, 2019

Figure 4-7, below, shows the annual trend in economic impacts from state and federal oversight between 2015 and 2019. Data was not available for Section 106 permit undertakings in 2015, demonstrating the significant impact of that oversight process.

Figure 4-7 Total Impact of State and Federal Permit Undertakings by Year (2015-2019)



(3) Methodology

No two Section 106 (or other permit) review processes are the same—they vary in size, scope, complexity, timeline, location, level of engagement from the public, degree of consultation from state and tribal professionals, and by reviewing agency. These and other factors make it difficult to determine the cost of completing a Section 106, Section 110, or other review and the ensuing economic impacts.

Even data on the number of each review initiated and completed each year is maintained inconsistently from year to year and from agency to agency. Despite this challenge, Table 4.16, below, shows the available data on the number of each review undertakings each year. Unlike other data in this report, data on state and federal oversight processes is shown by federal fiscal year—as opposed to calendar year.

TABLE 4.16 ALL PERMITS UNDERTAKEN IN COLORADO BY YEAR (2015-2019)

PERMIT/REVIEW TYPE	2015	2016	2017	2018	2019
BLM Cultural Resource Use Permit	16	8	0	30	--
Section 106	--	1,825	1,828	1,755	1,091
Section 110	21	22	14	14	15
State Permit	100	102	98	113	57
State Register Act	--	37	89	114	105

TABLE 4.16 ALL PERMITS UNDERTAKEN IN COLORADO BY YEAR (2015-2019)					
PERMIT/REVIEW TYPE	2015	2016	2017	2018	2019
Total	121	1,994	2,029	2,026	1,268

Figure 4-8 Section 106 Undertakings by Year (2016-2019)

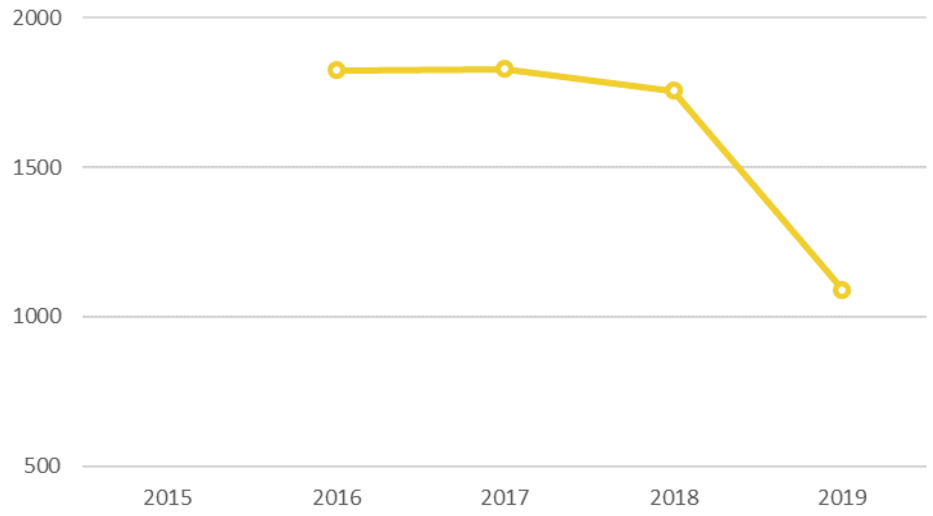
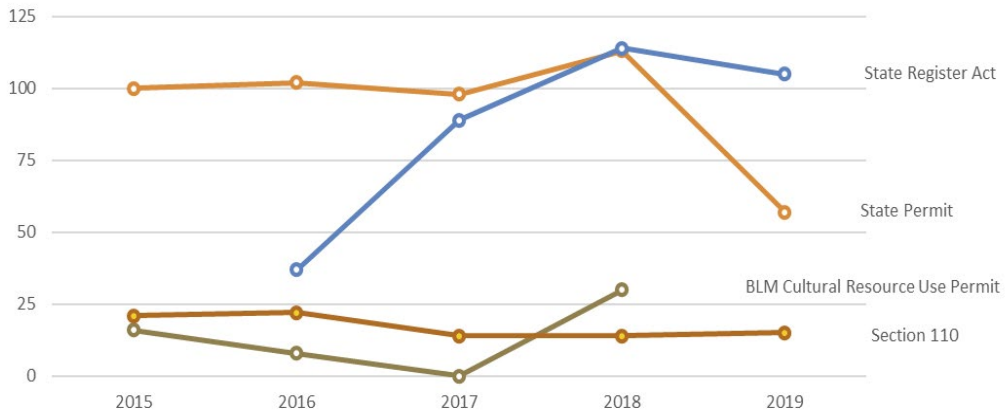


Figure 4-8, above, and Figure 4-9, below, visualize the change in number of each permit type undertaken between 2015 and 2019.

Figure 4-9 Other State and Federal Undertakings by Year (2015-2019)



To estimate the economic impact of these archaeology-related reviews and permitting processes, the average value of each permitting or review process was estimated (see Table 4.17, below).

TABLE 4.17 ESTIMATED AVERAGE VALUE OF REGULATORY OVERSIGHT	
PERMIT/REVIEW TYPE	**ESTIMATED VALUE**
BLM Cultural Resource Use Permit	$20,000
Section 106	$25,000
Section 110	$20,000
State Permit	$10,000
State Register Act	$15,000

The estimated average value of compliance with each permit type or review process allows for the determination of the estimated total annual impact of each procedure—and the economic impacts of that process on the economy of Colorado. To facilitate this, a Colorado-specific multiplier from the Bureau of Labor Statistics (BLS) was used. Table 4.18, below, shows the multipliers used to establish the overall economic impacts of each permitting or review process as shown in Table 4.15 in Section 4.2C(2), *Summary of Activity*.

TABLE 4.18 RIMS II MULTIPLIERS (2012/2018): ALL COLORADO COUNTIES (TYPE II)

IND. CODE [1]	INDUSTRY NAME	FINAL DEMAND			
		OUTPUT ($) [2]	EARNINGS ($) [3]	EMPLOYMENT (JOBS) [4]	VALUE ADDED ($) [5]
5416A0	Environmental and other technical consulting services	2.3421	1.0318	22.0878	1.4028
541700	Scientific research and development services	2.2153	0.7637	12.3278	1.2673

Notes: [1] Multipliers are based on 2012 U.S. Benchmark Input-Output (I-O) data and 2018 regional data, which represents the most current data available.
[2] Final Demand Output represents the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
[3] Final Demand Earnings represents the total dollar change in earnings of households employed by all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
[4] Final Demand Employment represents the total change in number of jobs that occurs in all industries for each additional 1 million dollars of output delivered to final demand by the industry corresponding to the entry. Because the employment multipliers are based on 2018 data, the output delivered to final demand should be in 2018 dollars.
[5] Final Value Added represents the total dollar change in value added that occurs in all industries for each additional dollar of output delivered to final demand by the industry corresponding to the entry.
Source: Bureau of Labor Statistics (BLS) Occupational Employment Statistics, 2019

4.3 VISITING ARCHAEOLOGICAL SITES

A. HERITAGE TOURISM

(1) Overview and Background

Heritage tourism is any travel to experience the places, artifacts, activities, and stories that are significant to the past or present cultural identity of a particular group of people. Heritage tourism activities include anything that focuses on local culture or history, including music, festivals, art, food and wine, important sites or structures, industry, scenic landscapes, famous locations in literature or film, indigenous or native cultures, and archaeological sites. Heritage tourists include visitors whose primary reason for traveling is to visit historic and cultural places, as well as those who incorporate at least one visit to such a site as part of their travel, even if it is not the primary purpose of the visit.

(A) Domestic Cultural Heritage Tourism

In a 2008 report by Destination Analysts, Inc., *The State of the American Traveler*, survey data found that over 40 percent of Americans visited an historical attraction in the past 12 months as part of leisure travel greater than 50 miles away from home.[2] It was the sixth most common activity that travelers participated in after dining, visiting friends or relatives, shopping, going to a beach or lake, and sightseeing in cities. The same survey found that over 29 percent of those surveyed visited a state or local park; over 24 percent drove a designated scenic byway; almost 22 percent visited art galleries or museums; over 21 percent visited a national park; over 20 percent attended a concert, play, or musical; over 17 percent took a guided tour; and almost ten percent visited an ethnic heritage site.

A separate, 2013 study by Mandala Research for the U.S. Cultural & Heritage Tourism (USCHT) Marketing Council and U.S. Department of Commerce, found that 76 percent of all leisure travelers participated in cultural heritage activities while traveling. These 98 million adults averaged spending $1,319 per trip, which contributed more than $170 billion to the U.S. economy each year.[3]

The Travel Industry Association of America released a report in 2003 on the characteristics of cultural heritage tourists, finding that for a majority of individuals in this group a specific historic or cultural activity or event was a main reason for at least one trip in the past year. Meanwhile, 40 percent of cultural heritage tourists added extra time to their trip because of an historic or cultural activity. The U.S. Travel Association has found that cultural heritage tourists tend to be older, are more likely to be retired, and are better educated than the average traveler. The study also found that cultural heritage tourists spend more on average ($625 vs. $457), take longer trips (5.2 days vs. 3.4 days), and are more likely to use lodging, use air travel, and spend more than $1,000.[4] A 2008 study also found that cultural heritage tourists in Colorado are more likely to travel from out-of-state and are often repeat visitors.

Although state-specific data for the cultural heritage tourist is not as well known, the Colorado Tourism Office estimates that about 29 percent of the state's overnight visitors are interested in visiting historic places and almost 25 percent are interested in cultural activities

[2] *The State of the American Traveler*. Destination Analysts, Inc. 2008.
[3] *The Cultural and Heritage Traveler*. Mandala Research, LLC. 2013.
[4] *The Historic/Cultural Traveler*. Travel Industry Association of America. 2003.

and attractions. A 2008 survey conducted by Longwoods International, and the Colorado Tourism Office found an even greater proportion of overnight visitors categorizing themselves as specifically interested in cultural heritage (38%) and 51 percent saying they experienced something heritage-related on their trip.[5] In 2016, 8.3 million overnight guests to Colorado visited national or state parks, 7.1 million visited historic sites, 5.6 million visited museums, and 2.6 million visited art galleries.[6]

(B) International Cultural Heritage Tourism

The National Travel and Tourism Office conducted a survey of international cultural heritage tourists in 2014, a group they defined as any international visitor (except Canada and Mexico) having participated in one or more of the following activities: Art Gallery/Museum, Concert/Play/Musical, Cultural/Ethnic Heritage Sites, American Indian Communities, Historical Locations, and National Parks/Monuments. The profile of international cultural heritage tourists in the United States found that they were engaged in activities that have both direct and indirect benefits to the economy, including shopping (91%), visiting national parks or monuments (60%), visiting art galleries and museums (49%), visiting historical locations (46%), fine dining (45%), taking guided tours (32%), seeing a concert, play or musical (30%), and visiting American Indian communities (8%). Although the activity categories and methodology employed by this report are different than the 2008 report on domestic cultural heritage tourists (*The State of the American Traveler*), international tourist visitation to cultural heritage attractions are generally higher than those for domestic travelers.[7]

A 2010 edition of the same survey report from the National Travel and Tourism Office found that heritage tourism was the fastest growing sector of international travel to the United States.[8]

(C) Sustainable Heritage Tourism

Colorado is the first state to partner with Leave No Trace Center for Outdoor Ethics to support more sustainable tourism and educate visitors about how to enjoy the outdoors with minimal impact.[9]

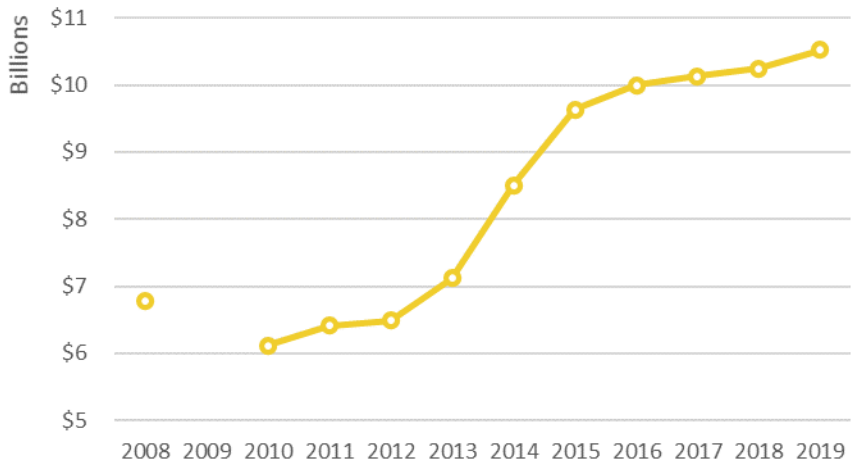
(2) Summary of Activity

Figure 4-10, below, shows the estimated direct travel spending by overnight and day visitors to Colorado that engage in heritage tourism. Like all tourism in the state, heritage tourism has grown since 2008. The result of this growth in tourism has been an increase in spending from $6.1 billion in 2010 to $10.5 billion in 2019 after adjusting for inflation.

---

[5] *Colorado Travel Year 2008: Final Report*. Longwoods International. 2009.
[6] *Cultural and Heritage Tourism Toolkit Part 2: Who are Heritage Consumers?* Colorado Tourism Office. 2017.
[7] *2014 Cultural Heritage Traveler*. U.S. Department of Commerce National Travel and Tourism Office. 2014.
[8] *2010 Cultural Heritage Traveler*. U.S. Department of Commerce National Travel and Tourism Office. 2010.
[9] *New Partnerships to Share 'Care for Colorado Principles' with Millions of Colorado Travelers*. Colorado Tourism Office. 2019.

Figure 4-10 Direct Travel Spending by Heritage Tourists in Colorado (2008-2019)



Based on direct travel spending by Colorado visitors that engage in heritage tourism, almost 79,000 jobs were created in 2019—up from almost 54,000 in 2008. The jobs created by heritage tourism resulted in $3.3 million in earnings in 2019—up from $1.9 million in 2008. Figure 4-11, below, details how job creating has changed over time.

Figure 4-11 Employment Resulting from Heritage Tourism in Colorado (2008-2019)

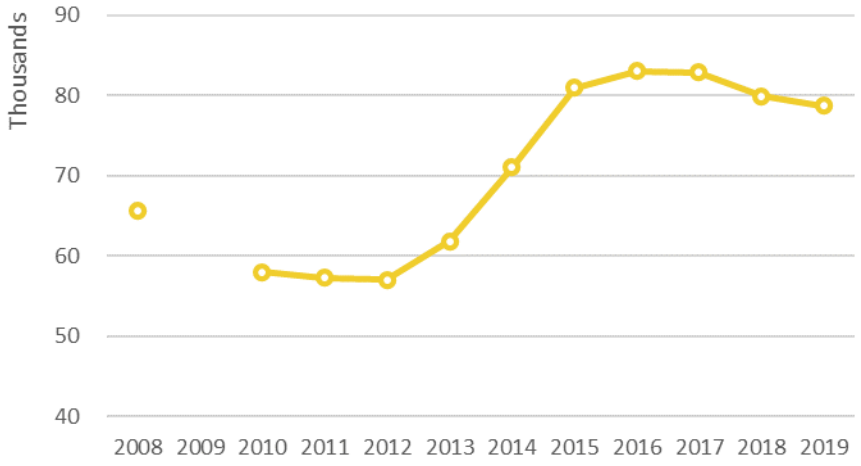
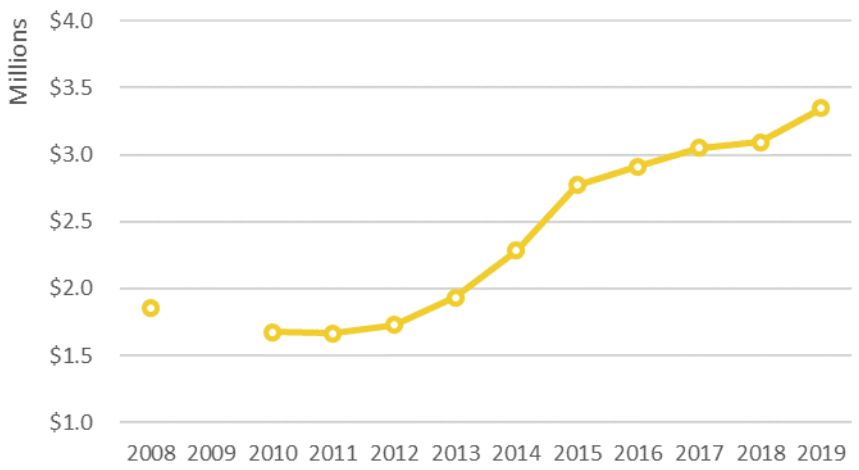


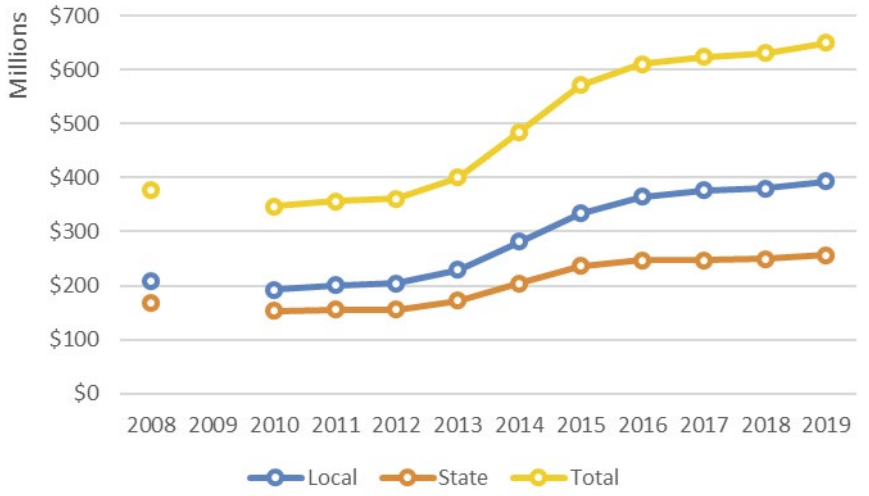
Figure 4-12, below, depicts the earnings generated by that employment. Employment earnings are adjusted for inflation (August 2019 dollars).

Figure 4-13 Earnings Resulting from Heritage Tourism in Colorado (2008-2019)



Direct travel spending generated almost $650 million in state and local taxes (not including property taxes)—the majority of which went to local government. As shown in Figure 4-13, below, the tax receipts generated by heritage tourism related travel spending have grown from about $375 million in 2008. All estimated tax revenues are adjusted for inflation to the 2019 value of the dollar.

Figure 4-12 Tax Receipts Resulting from Heritage Tourism in Colorado (2008-2019)



(3) Methodology

Travel and tourism studies were relied upon for much of the information presented in this section of the report. The two primary sources of travel and tourism in the state are the latest editions of the *Longwoods International Colorado Travel Year Report* (2019) and the *Dean Runyan Associates Report on The Economic Impact of Travel in Colorado* (2019).

Additionally, the 2008 edition of the *Longwoods International Colorado Travel Year Report* was used as a benchmark for estimating heritage tourism in the state; while dated, this report is the latest available version that includes a detailed analysis of heritage visitors and their experiences and impact on Colorado.

The *Longwoods International Colorado Travel Year Report* (the Longwoods Report) provides an overview of Colorado's tourism industry, with an emphasis on the demographics and travel behaviors of visitors to the state. The report is based on a representative sample of survey responses from over 2 million U.S. adults contacted annually by Travel USA. Of those, several thousand Colorado overnight and day visitors are identified for more detailed responses to inform the annual report. Visitation to Colorado and the spending associated with that tourism is detailed in Table 4.19, below. Data for 2009 is not available.

TABLE 4.19 VISITATION AND DIRECT TRAVEL SPENDING IN COLORADO (2008-2019)

	OVERNIGHT VISITORS (MILLIONS)	DAY VISITORS (MILLIONS)	TOTAL VISITORS (MILLIONS)	OVERNIGHT SPENDING (BILLIONS) [1]	DAY SPENDING (BILLIONS) [1]	TOTAL SPENDING (BILLIONS) [1]
2008	27.4	23.2	50.6	$11.67	$1.62	$13.28
2009 [2]	--	--	--	--	--	--
2010	28.9	26.0	54.9	$10.46	$1.54	$12.00
2011	28.9	28.9	57.8	$10.95	$1.63	$12.58
2012	29.5	30.8	60.3	$10.87	$1.86	$12.72
2013	31.0	33.6	64.6	$11.61	$2.34	$13.96
2014	33.6	37.7	71.3	$13.71	$2.96	$16.67
2015	36.0	41.1	77.1	$15.48	$3.40	$18.88
2016	37.3	44.7	82.0	$15.92	$3.68	$19.60
2017	37.9	46.8	84.7	$16.16	$3.70	$19.86
2018	37.8	47.4	85.2	$16.35	$3.73	$20.08
2019	39.0	47.9	86.9	$17.00	$3.63	$20.63
Total	613.9	616.9	1230.8	$255.20	$44.64	$299.84

Notes: [1] Values adjusted for inflation (August 2019)
[2] 2009 data unavailable.
Source: Longwoods International and Colorado Tourism Office, 2008-2019

The *Dean Runyan Associates Report on The Economic Impact of Travel in Colorado* (the Dean Runyan Report) describes the economic impacts of travel to and through Colorado and each of its 64 counties, four tourism regions, and 11 districts. The estimates of the direct impacts associated with traveler spending in Colorado were produced using a Regional Travel Impact Model (RTIM). The RTIM estimates direct impacts associated with traveler spending, travel impacts from non-commute and non-routine travel, and transportation impacts (destination-specific impacts of visitor spending on commodities and transportation services). While the Longwoods Report is based on a representative survey of Colorado visitors, the Dean Runyan Report estimates visitation but primarily focuses on economic impacts of direct spending.

TABLE 4.20 ECONOMIC IMPACT OF TRAVEL IN COLORADO (2000-2019)

	SPENDING (BILLIONS)	EARNINGS (BILLIONS)	EMPLOYMENT (THOUSANDS)	LOCAL TAX (MILLIONS)	STATE TAX (MILLIONS)	TOTAL TAX (MILLIONS)
2000	$17.02	$5.02	$140.20	$471.17	$460.53	$933.22
2001	$15.82	$4.98	$131.20	$441.03	$421.98	$863.00
2002	$15.21	$4.78	$128.20	$441.84	$409.97	$851.82
2003	$15.39	$4.66	$128.20	$437.72	$408.07	$845.78
2004	$16.62	$4.85	$136.30	$468.23	$437.76	$904.61
2005	$17.09	$4.84	$137.50	$501.82	$439.93	$941.75
2006	$18.11	$5.05	$142.60	$543.39	$465.77	$1,009.16
2007	$19.01	$5.20	$147.00	$585.57	$485.44	$1,069.75
2008	$18.60	$5.10	$148.20	$572.48	$463.09	$1,035.56
2009	$16.40	$4.86	$140.10	$522.49	$425.28	$947.78
2010	$17.29	$4.74	$138.40	$544.64	$433.35	$977.99
2011	$18.41	$4.78	$141.10	$576.67	$445.02	$1,021.69
2012	$18.68	$4.98	$145.10	$589.71	$449.36	$1,039.07
2013	$19.32	$5.25	$150.40	$620.83	$466.74	$1,087.58
2014	$20.40	$5.48	$155.40	$674.53	$489.17	$1,163.70
2015	$20.97	$6.04	$160.60	$727.83	$515.96	$1,243.78

2016	$21.55	$6.28	$165.30	$785.11	$531.71	$1,316.82
2017	$22.08	$6.66	$171.00	$819.75	$538.75	$1,358.50
2018	$23.29	$7.04	$175.70	$865.32	$567.22	$1,432.53
2019	$24.20	$7.70	$181.20	$905.00	$589.00	$1,494.00
Total	**$375.46**	**$108.27**	**$2,963.70**	**$12,095.13**	**$9,444.09**	**$21,538.08**

Note: All values adjusted for inflation (August 2019)
Source: Dean Runyan Associates and Colorado Tourism Office, 2000-2019

Based on these two annual reports (especially the detailed analysis of the 2008 Longwoods Report on cultural heritage tourism) this report can determine an estimate for the economic impact of cultural heritage tourism. The Longwoods Report serves as the primary data source because estimates for direct spending on travel and tourism in Colorado are based on detailed survey data (instead of models) and are more conservative than the Dean Runyan Report. Additionally, the sector-specific data on cultural heritage tourism in the 2008 edition of the Longwoods Report is tied to the same methodology.

To determine the overall economic impact of cultural heritage tourism in Colorado, the visitor and spending figures detailed in the Longwoods Report are multiplied by a factor of 0.51—representing the analysis of the 2008 Longwoods Report that 51 percent of all Colorado visitors "experience something heritage-related" on their trip, which meets the definition of a cultural heritage tourist. While the overall report differentiates between overnight and day visitors, the analysis of cultural heritage tourism does not make that distinction, so the annual totals for both overnight and day visitors are multiplied by the cultural heritage factor.

According to the 2008 edition of the Longwoods Report, historic and cultural travelers tend to spend more on average ($447 per person) as compared to the average Colorado tourist ($333 per person).[10] However, because this per capita spending figure was only provided in the 2008 edition of the report, and may change from year-to-year, the total spending by overnight and day visitors was multiplied by the same cultural heritage factor (0.51) to reflect the percent of visitors that are considered cultural heritage tourists. This ensures a more conservative estimate of spending and economic impact.

Using inflation-adjusted spending figures for annual spending by cultural heritage tourists, the spending figures were multiplied by another set of factors based on the Dean Runyan Report (see Table 4.21, below). To determine the appropriate multiplier, the ratio between visitor spending and each of the economic impact categories was determined for each year: earnings, employment (jobs created), and tax receipts (local, state, and total). These ratios were then averaged for the years 2008 to 2019 to estimate the overall average multiplier that can be assumed for each of these economic impact figures as a result of direct spending.

[10] Longwoods International. 2008.

TABLE 4.21 DIRECT TRAVEL SPENDING MULTIPLIERS

	EARNINGS/ SPENDING	EMPLOYMENT/ SPENDING	LOCAL TAX/ SPENDING	STATE TAX/ SPENDING	TOTAL TAX/ SPENDING
2008	0.27	7.97	30.78	24.90	55.69
2009	0.30	8.54	31.85	25.93	57.78
2010	0.27	8.01	31.51	25.07	56.58
2011	0.26	7.67	31.33	24.18	55.51
2012	0.27	7.77	31.58	24.06	55.64
2013	0.27	7.79	32.14	24.16	56.30
2014	0.27	7.62	33.06	23.98	57.04
2015	0.29	7.66	34.71	24.61	59.32
2016	0.29	7.67	36.43	24.67	61.11
2017	0.30	7.75	37.13	24.40	61.53
2018	0.30	7.54	37.16	24.36	61.51
2019	0.32	7.49	37.40	24.34	61.74
Average	**0.28**	**7.79**	**33.76**	**24.55**	**58.31**

Source: Dean Runyan Associates and Colorado Tourism Office, 2008-2019

The average ratio between direct spending and each economic impact factor was multiplied by the inflation adjusted overall direct spending by heritage tourists to estimate the resulting impacts on earnings, employment, and local and state taxes (excluding property taxes). The results are detailed in Table 4.22, below, and Section 4.3A(2), above.

TABLE 4.22 ECONOMIC IMPACT OF HERITAGE TOURISM (2008-2019)

	DIRECT SPENDING (BILLIONS) [1]	EARNINGS (BILLIONS) [1]	EMPLOYMENT	LOCAL TAX (MILLIONS) [1]	STATE TAX (MILLIONS) [1]	TOTAL TAX (MILLIONS) [1]
2008	6.8	1.9	53,994	$208.57	$168.72	$377.29
2009 [2]	--	--	--	--	--	--
2010	6.1	1.7	49,003	$192.84	$153.43	$346.27

2011	6.4	1.7	49,189	$201.03	$155.14	$356.17
2012	6.5	1.7	50,410	$204.88	$156.12	$360.99
2013	7.1	1.9	55,422	$228.78	$171.99	$400.77
2014	8.5	2.3	64,767	$281.13	$203.87	$485.00
2015	9.6	2.8	73,758	$334.27	$236.96	$571.23
2016	10.0	2.9	76,678	$364.19	$246.64	$610.83
2017	10.1	3.1	78,447	$376.07	$247.16	$623.22
2018	10.2	3.1	77,261	$380.51	$249.42	$629.93
2019	10.5	3.3	78,779	$393.46	$256.08	$649.54
Total	**152.9**	**43.1**	**1,193,656**	**$5,042.86**	**$3,763.99**	**$8,806.86**

Notes: [1] Values adjusted for inflation (August 2019)
[2] 2009 data unavailable.

B. MUSEUM AND CULTURAL SITE VISITATION

Heritage tourism includes visits to museums and cultural sites in Colorado, and the assessment of the economic impacts of heritage tourism, above, includes museum and cultural site visitation. However, this section explores key components of cultural heritage tourism in Colorado with a deeper focus on archaeology and explores its unique contributions to the state.

Any analysis or estimate of economic impact in this section is targeted toward the specific element being discussed and does not always follow the same methodology. Therefore, the impacts of each component will not add up to the overall impact of heritage tourism.

(1) Colorado Scenic and Historic Byways

(A) Overview and Background

Colorado began designating scenic and historic byways in 1989, making it one of the oldest such programs in the country. Today, Colorado is home to 26 byways that reach all corners of the state, including: the South Platte River Trail in the northeast, the Santa Fe Trail in the southeast, the Trail of the Ancients in the southwest, the Dinosaur Diamond in the northwest, and many in between. Thirteen of these scenic and historic byways are also designated as America's Byways by the U.S. Secretary of Transportation—more national designations than any other state.[11]

A 2016 report by the Colorado Department of Transportation (CDOT) on the economic impact of Colorado's scenic and historic byways estimated that the cumulative impact of visitor spending on Colorado byways to the state economy between 2009 and 2014 was

[11] Colorado Scenic Byways. Colorado Department of Transportation (CDOT). 2021.

almost $4.8 billion, or nearly $800 million annually. As part of this direct and indirect impact, over 4,000 jobs were created because of tourist spending along the byways.

While all of Colorado's byways attract cultural heritage tourists—tourists who engage in at least one cultural activity during their trip—some byways are specifically targeted to highlighting Colorado's archaeological resources. The most prominent example is the Trail of the Ancients, a 480-mile loop in southwest Colorado and southeast Utah (116 miles within Colorado), that links Colorado sites like Mesa Verde National Park, the Anasazi Heritage Center, Canyon of the Ancients National Monument, Hovenweep National Monument, and the Ute Mountain Tribal Park with similar scenic and historic sites in Utah.

Meanwhile, the newest scenic and historic byway is the 125-mile Tracks Across Borders Byway (89 miles within Colorado) that connects Durango with Chama, New Mexico via the sovereign nations of the Southern Ute and the Jicarilla tribes, and includes cultural heritage sites like Chimney Rock National Monument, the Southern Ute Cultural Center and Museum.

Other Colorado scenic and historic byways are less focused on archaeological sites, but many still showcase Native American history and culture. The San Juan Skyway in southwest Colorado features the Anasazi Heritage Center and Mesa Verde National Park as prominent attractions. The Santa Fe Trail byway in southeast Colorado follows the historic trail used by tribes of the Great Plains and later settlers, along with the trading center Bent's Old Fort, now a National Historic Site. The Frontier Pathways byway begins at the El Pueblo Museum and follows a much-traveled corridor used by Ute Indians, explorers, fur trappers, and settlers.

(B) Summary of Activity

Between 2015 and 2019 tourist spending along Colorado's 26 byways resulted in almost 29,000 jobs, over $1.2 billion in labor earnings, and almost $264 million in state and local taxes. Table 4.23, below shows the estimated economic impact of Colorado's scenic and historic byways on the state economy.

TABLE 4.23 ECONOMIC IMPACT OF SCENIC AND HISTORIC BYWAYS (2015-2019)

YEAR	EARNINGS [1]	JOBS CREATED	TAX RECEIPTS [1]
2015	$223,376,998.36	5,270	$48,848,060.37
2016	$234,698,598.43	5,554	$52,234,534.65
2017	$245,944,738.19	5,824	$53,294,158.26
2018	$249,323,226.54	5,854	$53,868,088.94
2019	$269,674,743.22	6,179	$55,544,594.26
Total	**$1,223,018,304.75**	**28,681**	**$263,789,436.49**

Notes: [1] Values adjusted for inflation (August 2019)

(C) Methodology

Using the economic impact data produced by CDOT's 2016 report, *Colorado Byways Economic Data Analysis*, the average annual labor earnings, economic output, and tax

receipts was determined for 2015 through 2019 by comparing 2009-2014 statewide tourism impact data used in Section 4.3A, *Heritage Tourism*, with byway tourism impact data over the same period. To allow for this comparison the following assumptions were made:

1. Statewide visitation and economic impact data for 2009 was assumed to be an average of 2008 and 2010 for each factor.
2. The relationship between each statewide economic impact factor and the corresponding byway economic impact factor between 2009 and 2014 was assumed to continue for 2015 to 2019 at the same ratio.
3. The ratio between the statewide economic impact factor and byway economic impact for earnings and tax receipts was assumed to be somewhat consistent for employment.

The relationship between the statewide economic impact of tourism and the share that could reasonably be attributed to Colorado scenic and historic byways is detailed in Table 4.24, below. Note that because data from 2009 through 2014 is a multi-year average the value appears to be much lower than the following estimates. This is compounded by the inability to adjust these values for inflation because they are an average of multiple years. All values in Table 4.24 are not adjusted for inflation.

TABLE 4.24 RELATIONSHIP BETWEEN STATEWIDE AND BYWAY VISITOR SPENDING IMPACTS

YEAR	EARNINGS [1]	TAX RECEIPTS [1]	EMPLOYMENT
Statewide Tourism 2009-2014 (Average)	$3,234,105,894.00	$677,336,279.28	93,470
Byway Tourism 2009-2014 (Average)	$132,867,855.61	$29,540,080.67	3,739
Byway Factor	**4.11%**	**4.36%**	**4.00% [2]**

Notes: [1] Values not adjusted for inflation
[2] Conservative percentage assumed based on other proportions

The byway factors provided in Table 4.24 were used to determine the percent of overall visitor impacts on the Colorado economy that can be attributed to activity along byways, which is detailed in Section 4.3B(1)(B), above.

To support the analysis and findings for the share of visitor spending attributable to tourism along scenic and historic byways this report also relies on data from CDOT's Online Transportation Information System (OTIS) and CDOT annual performance plans. These sources outlined that CDOT manages about 9,000 miles of road (around 23,000 lane miles of roadway—the number of miles of through lanes). This was used to compare statewide impacts with the 2,552 miles of byways in Colorado.

The OTIS system also provided the statewide average annual daily traffic (AADT) for all roadways in the state. Using these statistics, the labor earnings, economic output, and tax receipts per mile were produced, along with a percentage of each factor for each scenic and historic byway. This value was used to estimate the earnings, output, and tax receipts for the Tracks Across Borders Byway, which was not included in the 2016 report (Tracks Across Borders Byways was designated in 2015). As seen with the Tracks Across Borders Byway,

which extends into New Mexico, data from OTIS was also helpful in isolating impacts of multi-state byways.

(2) National Parks, Monuments, Historic Sites, and Historic Trails in Colorado

(A) Overview and Background

Colorado is home to four national parks (Rocky Mountain, Mesa Verde, Great Sand Dunes, and Black Canyon of the Gunnison), eight national monuments (Hovenweep, Dinosaur, Chimney Rock, Yucca House, Canyons of the Ancients, Browns Canyon, Florissant Fossil Beds, and Colorado), two national historic sites (Bent's Old Fort and Sand Creek Massacre), and four national historic trails (California, Old Spanish, Pony Express, and Santa Fe). Additionally, Colorado has many other federal lands, including national recreation areas, national forests and grasslands, national wildlife refuges, national conservation areas, and national wilderness areas. All parks, monuments, sites, forests, trails, and other public lands are part of the state's robust heritage tourism industry, and most have traces of human history. However, some of these federally recognized and administered sites have more prominent archaeological significance than others.

Mesa Verde National Park (NP) is the most prominent archaeological preserve in Colorado, and the only such site designated as a national park. It also happens to be Colorado's only UNESCO World Heritage Site. Near Mesa Verde, in southwestern Colorado, is Canyon of the Ancients National Monument (NM), Chimney Rock NM, Hovenweep NM, and Yucca House NM. While many of the federally designated archaeological sites are in this part of the state, Bent's Old Fort National Historic Site (NHS) and the Sand Creek Massacre NHS are prominent federally administered sites in eastern Colorado.

(B) Summary of Activity

Figure 4-14, below, shows visitor trends at all federally managed parks, monuments, and sites where data is available in Colorado. Due to the diverse nature of federal management data collection and availability varies by managing agency. Colorado has national monuments that are managed by the National Park Service (NPS), Bureau of Land Management (BLM), and U.S. Forest Service (USFS) as well as monuments and sites that are managed jointly with adjacent parks (i.e., Yucca House NM is adjacent to Mesa Verde NP and does not have any independent facilities, staff, or data collection). Mesa Verde NP is by far the greatest visitor attraction.

Figure 4-14 Archaeology-Related National Park, Monument, and Historic Site Visitation (2012-2019)

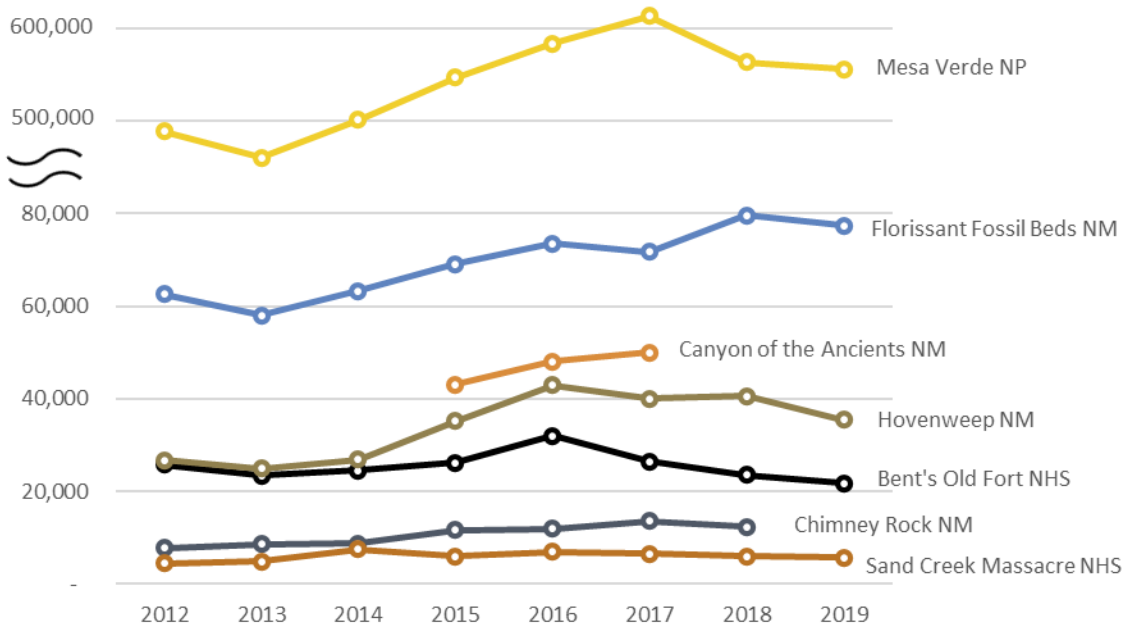


Table 4.25, below, details the estimated economic impact of visitation to federally administered archaeology-related parks, monuments, and historic sites in Colorado in 2019. Overall, the cumulative economic impact of visitation and almost $65.5 million in visitor spending at these sites in 2019 was almost $82 million, with almost 1,000 jobs created. Most of these benefits were from Mesa Verde National Park, which accounted for 80 percent of all visits among archaeology-related parks monuments, and historic sites; 89 percent of all visitor spending; and 88 percent of the cumulative economic output.

TABLE 4.25 ECONOMIC OUTPUT OF ARCHAEOLOGY-FOCUSED NATIONAL PARKS, MONUMENTS, AND HISTORIC SITES IN COLORADO (2019)

	VISITS [1]	VISITOR SPENDING [2]	JOBS CREATED [2]	LABOR INCOME [3]	VALUE ADDED [4]	ECON. OUTPUT [5]
Bent's Old Fort NHS	21,674	$1,300,000	18	$520,000	$911,000	$1,600,000
Canyons of the Ancients NM [6]	ND	ND	ND	ND	ND	ND
Chimney Rock NM [7]	ND	ND	ND	ND	ND	ND
Florissant Fossil Beds NM	77,340	$4,600,000	64	$2,400,000	$4,100,000	$6,700,000
Hovenweep NM [8]	35,399	$1,150,000	16	$408,000	$750,000	$1,350,000
Mesa Verde NP	556,203	$58,100,000	822	$22,200,000	$39,900,000	$72,000,000
Sand Creek Massacre NHS	5,701	$339,000	5	$86,000	$165,000	$344,000
Yucca House NM [9]	ND	ND	ND	ND	ND	ND
Total	**696,317**	**$65,489,000**	**925**	**$25.,614,000**	**$45,826,000**	**$81,994,000**

Notes: [1] Recreation visits.
[2] Direct and secondary jobs.
[3] From direct and secondary jobs.
[4] Measure of the gross value added from visitor spending to the gross domestic product (GDP) of the regional economy.
[5] Measure of the total estimated value of the production of goods and services supported by visitor spending.
[6] Canyons of the Ancient NM is administered by the BLM. Visitation estimate for 2017.
[7] Chimney Rock NM is administered by the USFS. Jobs and economic output for 2015.
[8] Hovenweep NM is located in both Colorado and Utah; visitation data is provided for the park as a whole, but visitor spending, jobs created, and economic impacts are reduced by half to reflect that Utah receives partial benefit.
[9] Yucca House NM does not collect visitation, employment, or economic data.

(C) Methodology

Data on visitation, visitor spending, and the economic impacts of these activities are recorded and reported annually by the NPS. As discussed above, however, some national monuments in Colorado are administered by the BLM or USFS, which do not record data to the same level of detail.

Canyons of the Ancients NM (administered by the BLM) was contacted to request data but was unable to provide any information beyond the 2017 Canyons of the Ancients NM Manager's Report. The report provided rough estimates for visitation between 2015 and 2017 (2015: 43,000; 2016: 48,000; and 2017: 50,000). Due to staffing changes at the national monument, additional data was not available.

Staff and volunteers were contacted at Chimney Rock NM (administered by the USFS) and provided estimates on annual visitation. Additionally, an economic impact study was completed on the economic contributions of cultural resources in southwest Colorado in 2016, which included information on Chimney Rock NM. In 2016 it was estimated that cultural resource management at Chimney Rock NM led to the creation of nine jobs,

$304,000 in labor income, $469,000 in value added, and over $1.6 million in combined economic output in the region. This study has not been carried forward and is not included in the 2019 economic impacts discussed in this section due to the out-of-date data.

Another key data gap is Yucca House NM, which is managed by the NPS and administered by adjacent Mesa Verde NP. Yucca House NM does not have any developed facilities (beyond signs, trails, and fencing) and does not track visitation numbers, although a staff member estimates visitation at 1,000 people per year. Yucca House NM does not have any dedicated staff, instead relying on Mesa Verde NP for law enforcement, resource management, planning, and interpretive services. Without any facilities, Yucca House NM does not generate any direct visitor spending, but those who visit the monument likely spend money on lodging, dining, and retail in the area.

(3) Local Sites and Museums

(A) Overview and Background

In addition to federally managed parks and sites with archaeological significance, Colorado is home to many more local museums and historic sites that attract visitors. Colorado museums are located throughout the state, cover a diversity of topics, and include those owned and operated publicly, privately, or through a non-profit organization. The Colorado-Wyoming Association of Museums identifies 329 museums in Colorado including dozens focused on archaeology, anthropology, and Native American history and culture.

This section looks at the overall economic impact of museums in Colorado and estimates the impact of museums and sites focused on archaeology and related topics. The estimates and analysis in this section are unavoidably rough due to the challenge of categorizing museums based on the level of emphasis on archaeology.

(B) Summary of Activity

A study by Oxford Economics (in partnership with the American Alliance of Museums) found that each year museums in Colorado support over 16,000 jobs—including over 8,100 jobs directly—while generating over $767 million in employee income, almost $257 million in taxes, and over $1 billion in value added to the economy. The museum industry in Colorado can be directly attributed for over 8,100 jobs, almost $363 million in employee income, and over $350 million in gross value added, before indirect and induced impacts are added (see Table 4.26, below).[12]

[12] Museums as Economic Engines: A National Report. Oxford Economics, 2017.

TABLE 4.26 IMPACT OF MUSEUMS IN COLORADO (2017)

	DIRECT [1]	INDIRECT [2]	INDUCED [3]	TOTAL
Employment (jobs)	8,107	3,054	5,038	16,162
Income	$362,684,699	$154,201,789	$252,309,130	$767,088,455
Gross value added [4]	$350,254,188	$297,866,088	$434,811,481	$1,078,739,798
Taxes [5]				$256,682,262

Notes: [1] Measure of the economic benefit of museum operations and activities.
[2] Measure of the activity driven by the supply chain as a result of the procurement of goods and services from other businesses.
[3] Measure of the impact of workers spending their wages on locally produced goods and services.
[4] Measure of the gross value-added contribution to gross domestic product (GDP).
[5] Measure of gross tax receipts paid at federal, state, and local levels.

The same study also found that museums in Colorado have a larger economic impact in the state when compared to the national average, and as a result the Colorado economy has a greater reliance on museums for economic activity. This is indicated by a location quotient of 1.2, where any value greater than one signifies a greater specialization in comparison to the larger geographic unit (in this case, the nation as a whole). A location quotient of 1.2 also indicates that the museum industry in Colorado has an economic output that is 1.2 times greater than the national average.

Based on the Oxford Economic study and the methodology detailed in Section 4.3B(3)(C), Table 4.27, below, details the estimated impact of Colorado museums that focus on archaeology, anthropology, Native American history and culture, and state and local history (which often includes Native American history).

TABLE 4.27 IMPACT OF ARCHAEOLOGY-RELATED MUSEUMS IN COLORADO (2017)

	DIRECT [1]	INDIRECT [2]	INDUCED [3]	TOTAL
Employment (jobs)	4,017	1,513	2,496	8,007
Income	$179,688,772	$76,397,847	$125,004,219	$380,046,864
Gross value added [4]	$173,530,190	$147,574,992	$215,423,322	$534,451,632
Taxes [5]				$127,170,847

Notes: [1] Measure of the economic benefit of museum operations and activities.
[2] Measure of the activity driven by the supply chain as a result of the procurement of goods and services from other businesses.
[3] Measure of the impact of workers spending their wages on locally produced goods and services.
[4] Measure of the gross value-added contribution to gross domestic product (GDP).
[5] Measure of gross tax receipts paid at federal, state, and local levels.

(C) Methodology

The Oxford Economics/American Alliance of Museums study does not isolate the impacts of different types of museums (i.e., the impacts of museums focused on archaeology, Native American culture, or history). The study also does not differentiate between different types of museums (i.e., large versus small, public versus private, or by topic area), so these estimated impacts also include museums unrelated to this study, including art museums, special topic area museums, and museums focused on non-archaeologic history.

To better understand those Colorado museums related to archaeology, Native American culture and history, and anthropology, a survey was developed to distribute to Colorado museums. The ten-question survey was distributed to Colorado museums using two methods. First, through the History Colorado newsletter to state-approved museums and cultural repositories, and second via a newsletter that the Colorado-Wyoming Association of Museums (CWAM) distributes to its membership.

History Colorado staff periodically distributes an e-newsletter, *Curation Notes*, to State-Approved Museums and Curatorial Repositories and those who sign up on the History Colorado website. There are currently 34 facilities that are listed as State-Approved Museums and Curatorial Repositories; however, *Curation Notes* is distributed to 170 email addresses and subscription to the e-newsletter is open to the public. CWAM distributes a monthly newsletter to 247 members, including 180 in Colorado (as of August 2019).

On August 8 and 9, 2019, the following ten-question online survey was distributed to Colorado museums (i.e., those subscribed to *Curation Notes* and/or the CWAM monthly e-blast) to establish a greater understanding of the economic impact of museums on the Colorado economy. Each question also included a rationale to explain to the respondent why each question was being asked and why it was important. This approach seemed especially important for questions that required disclosure of financial or proprietary information. The ten questions on the survey were:

1. Name: What is the name of your museum? This question will be used to avoid duplicate responses.
2. Visitation: How many visitors did your museum attract over the following years? Please provide data for as many years as available. This question will be used to understand the impact of heritage tourism in the area.
3. Cost of Admission: What was the cost of admission for adults, seniors, and youth in 2018? Please provide data for additional years if the cost has changed over time. This question will be used to understand the impact of heritage tourism in the area.
4. Volunteers: How many unpaid employees or volunteers contribute time at your museum? Please include part-time and temporary employees or volunteers as approximate fractions of a full-time employee (e.g., 4.75 for 4 full-time, 1 half-time, and 1 temporary [3-month] employee). Please provide data for as many years as available. This question will be used to assess the economic impact of volunteers at Colorado museums.

5. Volunteer Hours: What is the total number of hours worked by unpaid employees or volunteers? Please provide data for as many years as available. This question will be used to assess the economic impact of volunteers at Colorado museums.
6. Employees: How many people are paid employees at your museum? Please include part-time and temporary employees as approximate fractions of a full-time employee (e.g., 4.75 for 4 full-time, 1 half-time, and 1 temporary [3-month] employee). Please provide data for as many years as available. This question will be used to assess the impact of Colorado museums on employment.
7. Employee Wages: What is the approximate COMBINED salary of all employees at your museum? Please provide data for as many years as available. This information will be aggregated statewide for the report and kept confidential. This question will be used to identify the direct and indirect economic impact of museum employees in Colorado without requiring disclosure of overly proprietary information.
8. Donations: What is the total dollar value of all financial, material, and artifact donations received by the museum? Please provide data for as many years as available. This question will be used to capture the economic impact of Colorado museums outside of visitation, volunteerism, and employment.
9. Contact: Who is the best contact person for follow-up questions? Please provide a name, phone number, and email address. This question will be used to allow us to clarify a response or for follow-up questions.
10. Open Response: What other economic impacts are we missing?

After receiving four complete survey responses (and one anonymous response), the survey was redistributed to *Curation Notes* subscribers through History Colorado in early November. The second distribution failed to result in any additional responses. Table 4.28, below shows visitation numbers at four museums between 2012 and 2018. Overall, visitation at the responding museums has grown significantly between 2012 and 2018—let by 17 Mile House Farm Park and Colorado Springs Pioneer Museum witnessing significant growth over this period.

TABLE 4.28 VISITATION AT SELECT MUSEUMS IN COLORADO

	2012	2013	2014	2015	2016	2017	2018
17 Mile House Farm Park	550	921	1,751	3,073	5,023	7,468	6,030
City of Greeley Museums	29,755	25,126	23,042	25,358	24,708	28,761	27,276
Colorado Springs Pioneers Museum	54,086	57,686	61,935	64,826	76,327	90,397	112,383
Montrose County Historical Museum	1,194	1,144	980	1,154	928	1,058	1,052
Total	**85,585**	**84,877**	**85,957**	**91,338**	**101,963**	**120,216**	**140,711**

Table 4.29, below, shows employment and aggregated wage data for the same four museums. While data on employment and wages was not provided for all years by all museums, data estimates from Colorado Springs Pioneer Museum and Montrose County Historical Museum are provided for each year.

TABLE 4.29 EMPLOYEES AND TOTAL WAGES AT SELECT MUSEUMS IN COLORADO

	2012	2013	2014	2015	2016	2017	2018
17 Mile House Farm Park	--	--	--	--	--	0.25	0.5
	--	--	--	--	--	$9,000	$18,000
City of Greeley Museums	--	--	--	--	--	--	18.5
	--	--	--	--	--	--	--
Colorado Springs Pioneers Museum	7	7	7.5	9	9	10.5	11.5
	$378,000	$379,200	$304,200	$460,500	$489,300	$505,500	$517,500
Montrose County Historical Museum	1	1	1	1	1	1	1
	$10,000	$10,000	$10,000	$10,000	$11,000	$11,000	$13,000
Total	**8**	**8**	**8.5**	**10**	**10**	**11.75**	**31.5**
	$378,000	**$379,200**	**$404,200**	**$460,500**	**$489,300**	**$505,500**	**$517,500**

Table 4.30, below, shows the value of donations received by the museums that responded to this question or had kept data on donations. For a very small sample size, the growth of donations has increased since 2015.

TABLE 4.30 VALUE OF DONATIONS AT SELECT MUSEUMS IN COLORADO

	2012	2013	2014	2015	2016	2017	2018
Colorado Springs Pioneers Museum	--	--	--	$237,500	$340,259	$384,000	$400,764
Montrose County Historical Museum	--	--	--	--	$4,000	$6,000	$80,000
Total	**--**	**--**	**--**	**$237,500**	**$340,259**	**$384,000**	**$400,764**

Table 4.31, below, details the number of volunteer hours dedicated at the four museums that responded to the survey.

TABLE 4.31 VOLUNTEER HOURS AT SELECT MUSEUMS IN COLORADO

	2012	2013	2014	2015	2016	2017	2018
17 Mile House Farm Park	30	50	1,275	1,031	1,422	1,144	1,585
City of Greeley Museums	12,476	11,450	--	--	8,111	8,945	5,823
Colorado Springs Pioneers Museum	--	7,047	8,437	8,306	7,617	7,850	8,086
Montrose County Historical Museum	475	680	735	750	808	925	945
Total	**12,981**	**19,227**	**10,447**	**10,087**	**17,958**	**18,864**	**16,438**

Based on the survey data collected and the difficulty with getting sufficient responses, the summary economic impact of archaeology-related museums was determined by using the study completed by Oxford Economics (in partnership with the American Alliance of Museums). The study determined that Colorado museums cumulatively resulted in 16,162 jobs, employment income of over $767 million, almost $1.08 billion in gross value added to the state economy, and over $250 million in tax receipts (see Table 4.26).

Using this data and the CWAM database of Colorado museums, the estimates in Table 4.27 were determined. CWAM lists 329 museums in Colorado, which includes art museums, train and aerospace museums, prison museums, and many others. Of those, 163 museums were found to be related to archaeology, anthropology, or Native American history and culture. This was determined by sorting the museums by type and then reviewing each to determine if the museum is focused on one of the related topics or features relevant exhibits. Table 4.32, below, features the number of museums in Colorado by category (220). Each of the 220 museums were reviewed for relevance by reviewing museum websites information from History Colorado or the Colorado Tourism Office, and to eliminate duplicates. Following that process it was determined that Colorado is home to 134 museums relevant to this analysis—or 49.5 percent of all Colorado museums. To estimate the overall impact of these museums, it was assumed that 49.5 percent of the economic impacts of museums in Colorado could be attributed to museums that focus on or feature exhibited related to archaeology, anthropology, or Native American history and culture.

TABLE 4.32 CWAM COLORADO MUSEUMS BY TYPE

TYPE	NUMBER
American Indian History	6
Anthropology	1
Archaeology	4
History	2
Historical Society Museum	40
Living History	10
Local history	131
Native American History	1
Regional History	1
State History	3
Western History	21
Total	**220**
Total Relevant Museums	**134**

4.4 CELEBRATING AND STRENGTHENING THE ARCHAEOLOGICAL COMMUNITY

A. ARCHAEOLOGY EVENTS

(1) Overview and Background

Every year, multiple events, conferences, and meetings dedicated to archaeology, anthropology, and historic preservation are hosted in Colorado. These events vary in size, frequency, and target audience. National and international organizations host conferences that attract thousands of people from around the country and world, while annual meetings of statewide organizations or local chapters bring together smaller groups of local professionals and hobbyists from around the state.

Some conferences address archaeology but also related topics; for example, the annual Colorado Preservation, Inc., Saving Places conference brings together hundreds of archaeologists, historic preservationists, and planners to Denver from Colorado and many other states.

Other events are specific to archaeology. Colorado annually hosts the Colorado Archaeological Society (CAS) Annual Meeting and Conference, the Curation Alliance Forum, the International Archaeology Day Expo, and other local events, with host sites rotated throughout the state. Occasionally, Colorado is selected to host larger conferences including the annual American Anthropological Association (AAA) Annual Conference and Society for American Archaeology (SAA) Annual Meeting. These events, and others of this size, tend to be held in Denver, where a major airport, lodging, and convention facilities can more easily accommodate the number of attendees.

Regardless of the type of conference or event, these gatherings require planning, meeting production, venue rental, technical support, catering, and other activities before any attendees even arrive. Attendees spend money on registration fees, accommodations, transportation, dining, shopping, recreation, entertainment, and more. All this spending creates jobs, pays employees, allows for investment and maintenance of facilities, and generates taxes for the state and local economies.

(2) Summary of Activity

Between 2009 and 2019, archaeology-related conferences and events contributed over $48.5 million towards the Colorado economy in direct ($29.9 million) and indirect ($18.6 million) impacts. These economic impacts are felt throughout the state with events hosted in Cortez, Fort Collins, Craig, La Junta, Glenwood Springs, Denver, and other communities. Figure 4-15, below, shows the annual economic impact and the significant year-to-year variation. The large spike in spending and economic impact in 2015 reflects the significant impact of hosting the American Anthropological Association (AAA) Annual Meeting, held in Denver that year. Additionally, data for recent years is the most complete due to more rigorous data collection in recent years for some of the smaller, annual conferences and events.

Figure 4-15 Annual Economic Impact of Conferences and Events (2009-2019)

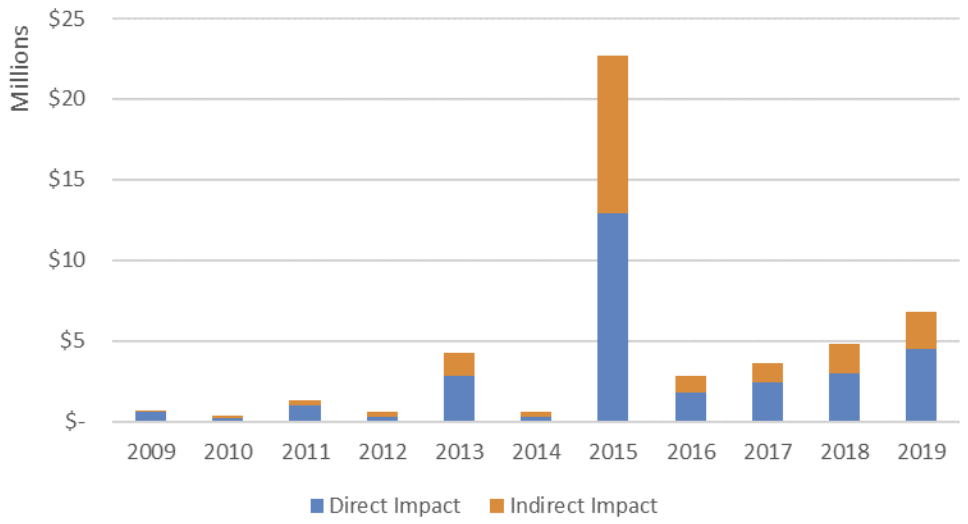
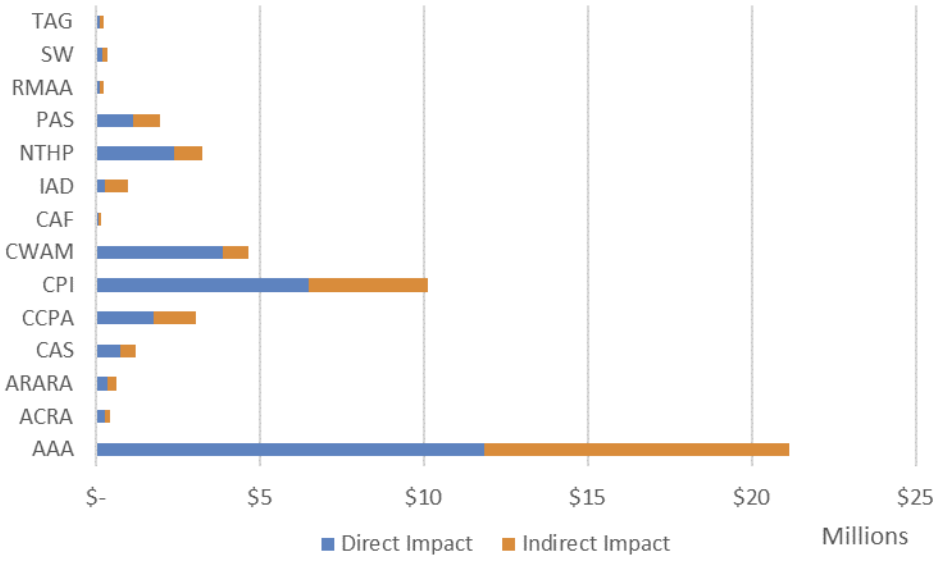


Figure 4-16, below shows the total economic impact of each conference or event on the state economy. The American Anthropological Association (AAA) Annual Meeting, hosted in Denver in 2015, attracted over 6,000 attendees, which left a significant impression on the economy through both direct spending and indirect impacts from that spending. Other major conferences also have significant economic benefits to the state and host community. For example, the CCPA Annual Meeting is annually held throughout the state and has demonstrated a large cumulative economic impact between 2010 and 2019, even though it is much less impactful than a single national conference in terms of economic benefit.

Figure 4-16 Economic Impact of Specific Conferences and Events (2009-2019)



(3) Methodology

A list of archaeology-related events was compiled and supplemented with additional events that were mentioned by people contacted during the data collection process. As the list grew,

additional event organizers were contacted with requests for information and data. While many event organizers were eager to participate, some were unresponsive, and others were willing to share data under the condition that it was aggregated to protect proprietary information. As a result, detailed information for some conferences is not provided in this report, although overall economic impact is provided.

No conferences or events track all the information necessary to fully understand the economic impact of the event, but most have quality data on event location and duration, the number of attendees, and registration fees. Some events effectively track overall costs of hosting the event and revenues from registration, sponsorships, and donations, but not all were willing to share that information. Very few event organizers collect data on attendee spending on accommodations, transportation, food and beverage, and other categories. Volunteer data was collected where available and is included in this analysis as a direct economic impact.

(A) Multipliers for Event Attendee Spending

To account for the lack of data on attendee spending, a multiplier was established to estimate direct attendee spending (lodging, food and beverage, recreation, retail, transportation, space rental, and business services) and indirect spending as a result of attending a conference or event. A Colorado-based trade association provided an estimate on the economic impact of conferences and similar events hosted at exhibit halls in the region served by that trade association. The estimate focused on average estimated daily spending by users of exhibit halls greater than 100,000 square feet in the region. Because the multiplier is a rough estimate and proprietary, the trade association requested anonymity.

As a result, two comparison multipliers were collected to assess the accuracy of the data provided by the Colorado-based trade association. A study completed by Oxford Economic for the Events Industry Council established a nation-wide estimate for the economic impact of a conference or event attendee over the course of the event, while a report by American Express Meetings and Events provides another nation-wide estimate for spending per attendee, per day—the same metric used by the Colorado-based trade association. The comparison of the multipliers is provided in Table 4.33, below.

TABLE 4.33 ESTIMATED ECONOMIC IMPACT OF EVENT ATTENDEE SPENDING

SOURCE	MULIPLIER	METRIC	SCOPE
Colorado-based trade association [1]	$704.83	Per attendee, per day	Average for a Colorado region
Events Industry Council	$630.00	Per attendee, total	National average
American Express Meetings and Events (all event types)	$623.67	Per attendee, per day	National average
American Express Meetings and Events (conf./trade show)	$636.00	Per attendee, per day	National average

Notes: [1] Anonymity requested by data source.

Although the economic impact multiplier provided by the Colorado-based trade association was somewhat higher than the other values, we determined it was the best multiplier to use for data analysis because it is more locally relevant, it is based on per person/per day (allowing it to be readily used for events of any length), and it provides a detailed breakdown of the direct versus indirect impacts within the overall multiplier.

(B) Data Collection for Archaeological Events

Table 4.34, below, shows the list of archaeology-related conferences and events in Colorado and a summary of the data that was collected on each event. Specific years (or a range of years) for each event are identified in the data summaries in the following section.

TABLE 4.34 ARCHAEOLOGY-RELATED EVENTS DATA COLLECTION

● DATA PROVIDED ◐ PARTIAL DATA PROVIDED ○ NO DATA PROVIDED

EVENT	LOCATION	YEAR	DURATION	ATTENDEES	REGISTRATION FEES	SPONSORSHIPS/DONATIONS	VOLUNTEER HOURS	HOSTING COSTS	ATTENDEE SPENDING
American Anthropological Association (AAA) Annual Meeting	●	●	●	●	○	○	○	◐	◐
American Cultural Resources Association (ACRA) Conference	●	●	●	●	●	○	●	●	○
American Rock Art Research Association (ARARA) Conference	●	●	●	●	●	○	●	●	○
Anthropology Graduate Student Conference	●	○	○	○	○	○	○	○	○
Colorado Archaeological Society (CAS) Annual Meeting	●	●	●	●	●	●	●	●	○
Colorado Council of Professional Archaeologists (CCPA) Annual Meeting	●	●	●	●	●	●	○	●	○
Colorado-Wyoming Association of Museums (CWAM) Annual Meeting	●	●	●	●	●	○	○	●	○
Curation Alliance Forum	●	●	●	●	○	○	●	●	○
International Archaeology Day Expo	●	●	●	●	●	○	●	●	○
PastForward (National Preservation Conference)	●	●	●	●	●	○	●	●	○
Plains Anthropological Society (PAS) Conference	●	●	●	●	●	●	○	●	○
Pecos Conference	●	●	○	○	○	○	○	○	○
Rocky Mountain Anthropological Association (RMAA) Conference	●	●	●	●	●	●	○	●	○
Saving Places Conference	●	●	●	●	●	○	●	●	○
Southwest Symposium	●	●	●	●	●	●	○	●	○

TABLE 4.34 ARCHAEOLOGY-RELATED EVENTS DATA COLLECTION

● DATA PROVIDED ◐ PARTIAL DATA PROVIDED ○ NO DATA PROVIDED

EVENT	LOCATION	YEAR	DURATION	ATTENDEES	REGISTRATION FEES	SPONSORSHIPS/DONATIONS	VOLUNTEER HOURS	HOSTING COSTS	ATTENDEE SPENDING
Theoretical Archaeology Group (TAG) Conference	●	●	●	●	●	●	●	●	○

Similar to the analysis completed on volunteer efforts by CAS in Section 4.4C, *Colorado Archaeological Society (CAS)*, volunteer data provided by the organizers of archaeology-related events was used to estimate the economic value of volunteer time and efforts. The Independent Sector, a nonprofit membership organization for nonprofits, foundations, and corporations in the charitable sector, provides an estimate for the value of each volunteer hour. These estimates are state-specific and are updated annually, which provides a method for assessing the economic impact of volunteer activities in Colorado. The Independent Sector uses a methodology recommended by the Bureau of Labor Statistics (BLS) that bases the value of volunteer time on "the hourly earnings (approximated from yearly values) of all production and non-supervisory workers on private non-farm payrolls average (based on yearly earnings provided by the BLS) for the national average." The national average is then increased by 12 percent to estimate for fringe benefits. Independent Sector, in partnership with IMPLAN, indexes this figure to determine state values.

Table 4.35, below, details the estimated value of each hour volunteered in Colorado. Value of volunteer time has not been released by The Independent Sector for 2019 and so this report assumes a three-percent increase from 2018, which is based on the average annual increase of three percent between 2009 and 2018 (the actual year-to-year change has varied anywhere between zero and eight percent).

The annual estimate for the value of volunteer time is adjusted from year-to-year to reflect the changing cost of labor and so these values are not further adjusted for inflation like others in this report.

TABLE 4.35 VALUE OF VOLUNTEER TIME [1]

	2012	2013	2014	2015	2016	2017	2018	2019
Value per Hour ($)	24.23	25.10	25.68	25.96	25.97	26.78	28.02	28.86 [2]

Notes: [1] The Independent Sector is the source of this state-level estimate for the value of each hour of volunteer time—a common metric used by charitable organizations to estimate volunteer impact.
[2] The value of volunteer time for 2019 was not released at the time of publishing; the value for 2019 is based on an assumed 3% increase from 2018 (the average annual increase since 2009).

(C) Data Collection for Specific Events

The specific data collection and analysis methodology for each conference or event is described below. For each event, the economic impact of visitor spending multiplier (provided based on 2019 data) has been adjusted for inflation to reflect the value of attendee spending in the year the event was held. The direct, indirect, and total impact values presented in the *Summary of Activity* section, above, have similarly been adjusted for inflation to August 2019 to provide a consistent year-to-year comparison. This has been done because data provided by event organizers are based on the value of the U.S. Dollar the year the event was hosted and adjusting for inflation allows a more precise comparison.

i. American Anthropological Association (AAA) Annual Meeting

In 2015, the AAA hosted their annual meeting in Denver. The conference lasted five days and had 6,052 attendees. The AAA was unable to share data on the cost of attendance for the event or the breakdown of attendees and registration types (members, non-members, students, early registrations, speaker registrations, etc.). This data would have allowed for a better idea of the direct economic impact of the event on the Colorado economy. Additionally, the AAA was unable to share data on the complete cost of hosting (only catering costs of $45,000), revenues generated, or the contributions of volunteers. The AAA was, however, able to estimate the lodging costs generated by meeting attendees (at least $850,000). With very little data on the other direct spending and costs, and only the general estimate on lodging spending, this report applies the standard visitor spending multiplier (discussed above) to estimate direct economic impact of the AAA annual meeting. The AAA has approximately 9,000 members.

ii. American Cultural Resources Association (ACRA) Annual Meeting

In 2015, the ACRA hosted their annual meeting in Denver. The conference lasted four days and had 125 attendees. The ACRA provided data on the cost to attend for members ($425) and non-members ($450) but was unable provide a breakdown of how many attendees registered under each registration type. Additionally, the number of registrants that qualified for a $50 early-bird discount was not provided. For data analysis purposes it was assumed that all registrations were members (the lower value) to account for this uncertainty. The ACRA provided an overall budget for the event but did not include the pay for the one paid staff member. Finally, the ACRA estimated that about 40 volunteer hours were required to host the event but did not provide volunteer hours for the organizing committee or meeting Chair. This report multiplies the number of volunteer hours by the value of volunteer time to determine economic impact. Specific data on visitor spending was not tracked by the ACRA, so this report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impacts of the ACRA annual meeting.

iii. American Rock Art Research Association (ARARA) Annual Conference

In 2018, the ARARA hosted their annual conference in Grand Junction. The conference lasted four days and had 204 attendees. The ARARA provided data on the breakdown of attendance by registration type (varying from $85 for members to $125 for non-members). Members of CAS were also given the member rate for this event. Student registration was free and student attendance was not tracked alongside the other registration categories. The ARARA provided an overall budget for the event and data on the hours volunteered by the primary conference organizer (150-160) but did not track

data on the hours dedicated by the other 1-4 volunteers at the event. The number of volunteer hours that was recorded was multiplied by the value of volunteer time to determine economic impact. Specific data on visitor spending was not tracked by the ARARA, so this report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impacts of the ARARA annual meeting.

iv. Colorado Archaeological Society (CAS) Annual Meeting

Each fall, CAS hosts its annual meeting in various locations around Colorado. In the past four years the annual meeting has been held in Pueblo (2019), Cortez (2018), Denver (2017), and Grand Junction (2016). Data on previous events was not recorded by CAS and so is not included in this report. In each of the past four years, the CAS annual meeting has lasted three days and attracted 114 to 161 attendees. Data was not tracked on the number of student attendees, volunteers, or volunteer hours consistently each year. For years when that data was recorded, volunteer hours were multiplied by the value of volunteer time to determine economic impact. Data on revenues, including sponsorships, was provided each year data was available. CAS did not track specific attendee spending on lodging, food and beverage, transportation, etc., so this report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impact of the CAS annual meeting.

v. Colorado Council of Professional Archaeologists (CCPA) Annual Meeting

The CCPA hosts an annual meeting each spring in various locations around Colorado, including Durango (2019), Longmont (2018), Grand Junction (2017), Salida (2016), Estes Park (2015), Glenwood Springs (2014), Denver (2013), Durango (2012), La Junta (2011), and Montrose (2010). The CCPA annual meeting data varies in detail from year-to-year. Some years data is recorded on the cost of coffee and snacks and the number of hotel rooms booked at the designated conference hotel. Other years data is not recorded on the number of attendees or cost of renting the conference venue. Based on discussions with recent conference organizers, it is assumed that the annual meeting lasts three days each year. Attendance data is not consistently tracked and is not available for 2016, 2017, or 2019. Student registrations have only been recorded for four of the past ten years. Data on conference expenses and revenues, including sponsorships, and scholarship fundraising are included in this analysis when data was provided. No data has been recorded on volunteer hours for any year of the CCPA annual meeting and the economic impacts of volunteer activity are not assessed. In general, the CCPA did not track attendee spending on lodging, food and beverage, transportation, etc. To ensure consistent metrics are used, this report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impact of the CCPA annual meeting.

vi. Colorado Preservation Inc. (CPI) Saving Places Conference

The Saving Places Conference, hosted by CPI, is not an archaeology-specific conference, but does include sessions on archaeology and features topics that relate to the preservation of archaeological sites, in addition to historic structures. Each year the Saving Places conference is held in Denver over a four-day period with attendance increasing over the past four years from 661 to 823 people. Estimated volunteer hours were provided by CPI and were multiplied by the value of volunteer time to determine economic impact. The CPI conference organizer provided additional information on

registration fees, hosting costs, and revenues, but has requested that proprietary financial information on the conference be kept confidential. This report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impact of the conference and these overall economic impacts are included in this report without revealing financial data.

vii. Colorado-Wyoming Association of Museums (CWAM) Annual Meeting

The CWAM annual meeting is another archaeology-adjacent event held to provide museum professionals with an opportunity to network, share ideas, and learn best practices. The CWAM annual meeting is included in this analysis because of the cultural heritage component of this report, the broad focus of many CWAM museums, and the organizational purpose of CWAM to serve those "engaged in the collection, preservation, and/or interpretation of artistic, natural, pre-historical, or historical heritage." The CWAM annual meeting alternates between host communities in Wyoming and Colorado including the Colorado communities of Boulder (2017), Craig (2015), Golden (2013), Durango (2011), and Estes Park (2009). The annual meeting lasts three days and typically attracts around 125 people, although almost 300 attendees came to the 2013 conference in Golden. No data was collected on the breakdown of registrations by member and non-member, so it was assumed that all attendees paid the lower, member rate. Conference revenues from advertisements in the program, sponsorships, vendor booth rental, and grants was not tracked or included in the analysis. The cost of hosting was roughly estimated by the CWAM representative that provided conference data. No data was collected on volunteers or volunteer hours. CWAM did not track attendee spending on lodging, food and beverage, transportation, etc., and so this report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impact of the CWAM annual meeting when held in Colorado.

viii. Curation Alliance Forum

The Curation Alliance Forum is a unique event hosted by History Colorado each year to promote any rule changes to museums in the state and to foster an informal network of curatorial repositories. Despite not being a formal conference or workshop, the forum attracts museum professionals to the all-day forum and an annual "Pillar" meeting for a total of one-and-a-half days. Over the past four years the event has been hosted in Fort Collins (2019), Denver (2018), Colorado Springs (2017), and Grand Junction (2016) with attendance increasing each year from 17 (2016) to 68 (2019). The forum is free to attend, and data is collected on the cost of hosting. Estimated volunteer hours were also provided and were multiplied by the value of volunteer time to determine economic impact. Event organizers have not tracked attendee spending on lodging, food and beverage, transportation, etc. This report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impact of the CAS annual meeting.

ix. International Archaeology Day (IAD) Expo

International Archaeology Day happens in mid-October each year and is accompanied by a variety of archaeology-focused events in multiple locations around the world. One of the largest such events in Colorado is the annual IAD Expo at Roxborough State Park (RSP) in Douglas County and other sites in the Denver metro area. The one-day event attracts hundreds of attendees to the park and other host sites for activities, tours, and

lectures with partners in state and local agencies. RSP and Colorado Parks and Wildlife (CPW) have led the organization of the Expo and have tracked data on the event since 2012. The Expo is free to attend (although admission is charged to enter RSP) and attendance has grown from an estimated 200 people in 2012 to almost 850 in 2019. The cost of hosting has similarly grown from an estimated $130 in 2012 to an estimated $850 in 2019. In 2017, budget cuts resulted in a major scale-back of the event and very little data was tracked that year. Estimated volunteer hours have been kept each year and have ranged from 40 in 2017 to over 650 in 2019. The number of volunteer hours was multiplied by the value of volunteer time to determine economic impact. Data on visitor spending was not tracked by the RSP or CPW. This report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impact of the IAD Expo, although the multiplier was modified to remove lodging, space rental, and business services from the per person estimated spending due to the nature of the event. All other factors for visitor spending were kept the same.

x. National Trust for Historic Preservation (NTHP) PastForward Conference

The PastForward Conference was hosted by NTHP in Denver in 2019. Like the CPI Saving Places Conference, this event is not archaeology-specific, but does include sessions on archaeology and features topics that relate to the historic preservation of archaeological sites, in addition to historic structures. Data provided by the NTHP includes attendance by registration type (including free and discounted registrations) and an estimated cost of hosting. The conference does not use volunteers and no volunteer data was provided. The PastForward Conference organizer has requested that proprietary financial information on the conference be kept confidential. This report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impact of the conference and these overall economic impacts are included in this report without revealing financial data.

xi. Plains Anthropological Society (PAS) Annual Conference

In 2013 the PAS held its annual conference in Loveland. The five-day event had 518 attendees and ten volunteers. Volunteer hours and the attendance by registration type was not tracked for this event. However, overall revenues from registrations, banquet, donations, sales, tours, and vendor fees were recorded and shared for this report. Cost of hosting data was also provided. Event organizers have not tracked attendee spending on lodging, food and beverage, transportation, etc. This report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impact of the PAS annual conference.

xii. Rocky Mountain Anthropological Association (RMAA) Annual Conference

In 2015 the RMAA held its annual conference in Steamboat Springs. The four-day event had 75 attendees. Although attendance by registration type was not tracked, the overall income generated from registrations was recorded and provided by the event organizer along with the cost of hosting. Volunteer hours were not tracked for this event. Event organizers have not tracked attendee spending on lodging, food and beverage, transportation, etc. This report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impact of the RMAA annual conference.

xiii. Society for American Archaeology (SAA) Annual Meeting

The Society for American Archaeology (SAA) is an international organization focused on the archaeological heritage of the Americas. The SAA has approximately 7,500 members, making it one of the largest professional organizations in the archaeology and anthropology field. The SAA hosts an annual meeting and conference each spring in a major North American city. Denver was host in 2002 and is scheduled to host again in 2025. The SAA was unable to provide data on the 2002 annual meeting, but based on membership and attendance at other conferences, it is likely similar to the impact of the AAA Annual Meeting described above.

xiv. Southwest Symposium

Denver's Museum of Nature and Science (DMNS) hosted the 2018 Southwest Symposium, a biennial conference on archaeology hosted by cities in southwestern United States and northwestern Mexico. In 2018, the Southwest Symposium attracted 112 members and 33 students over three days. Attendance by registration type was provided and paired with sponsorships and donations to determine revenues. The overall cost of hosting and an estimate for volunteer hours was also provided by the conference organizer. The number of volunteer hours recorded was multiplied by the value of volunteer time to determine economic impact. Data on visitor spending was not tracked by the conference organizer. This report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impact of the Southwest Symposium.

xv. Theoretical Archaeology Group (TAG) Conference

The North American chapter of TAG hosts its annual conference throughout the country each year, including hosting the even in Boulder in 2016. The three-day event had almost 100 attendees (73 of them students). Revenues were provided based on registration type ($100 for members and $60 for students), which made up all revenues recorded for the conference. The cost of hosting the event and the volunteer hours dedicated to organizing and holding the conference were also tracked. The number of volunteer hours recorded was multiplied by the value of volunteer time to determine economic impact. Data on visitor spending was not tracked by TAG. This report applies the standard visitor spending multiplier (discussed above) to estimate the direct and indirect economic impact of the TAG conference.

(4) Recommendations

In addition to the various data gaps detailed in this section, a few events did not provide any data for this report and there are likely other relevant events that were not captured. It is recommended that any relevant conferences and events not included in this report contact the State Archaeology and Deputy State Historic Preservation Officer, Dr. Holly Norton, to provide contact information and relevant data to inform future iterations of this report.

To support future economic studies, it is recommended that archaeology-related conferences and events record the following data points in the future:

(A) Length of each event in days (including differentiating between full and half-days)

(B) The number of attendees at each event and the number of attendees under each registration type along with overall revenues from registrations, if applicable

(C) The combined value of all donations, sponsorships, and other revenues (booth fees, advertising, etc.)

(D) The total cost of hosting the event, including planning and event staff wages, space rental, food and beverage, entertainment, etc.

(E) The number of hours volunteered towards planning and hosting the events and the number of volunteers involved in the effort.

(F) If possible, attendee spending on lodging, food and beverage, recreation, retail, transportation, space rental, and business services.

B. ARCHAEOLOGY EDUCATION

(1) Overview and Background

Education in archaeology can be informal—an exhibit at a local museum or a public event like the International Archaeology Day Expo—or more formal, like a post-secondary degree through one of Colorado's 21 college or university programs. Most university programs in the state offer degrees in anthropology—a broad field that includes archaeology as a subfield. As a result, many anthropology programs offer courses or concentrations in archaeology.

Table 4.36, below, provides an overview of those 21 institutions with information provided from a survey, where possible, and supplemented with online research where survey data was not available.

TABLE 4.36 ARCHAEOLOGY HIGHER EDUCATION PROGRAMS IN COLORADO

	Program(s)	Degree(s)
FOUR-YEAR INSTITUTIONS		
Adams State University [1]	Anthropology	BA [3]
	Archaeology	MA [4] BA
	Cultural Resource Management (CRM)	MA
Colorado College [2]	Anthropology	BA Minor
Colorado Mesa University [2]	Applied Geography & Anthropology	BA
	Archaeology	Minor
	Forensic Anthropology	Minor
	Cultural Resource Management	Certificate
Colorado State University, Fort Collins [2]	Anthropology	PhD [5] MA BA Minor
Colorado State University, Pueblo [2]	Anthropology	Minor

TABLE 4.36 ARCHAEOLOGY HIGHER EDUCATION PROGRAMS IN COLORADO

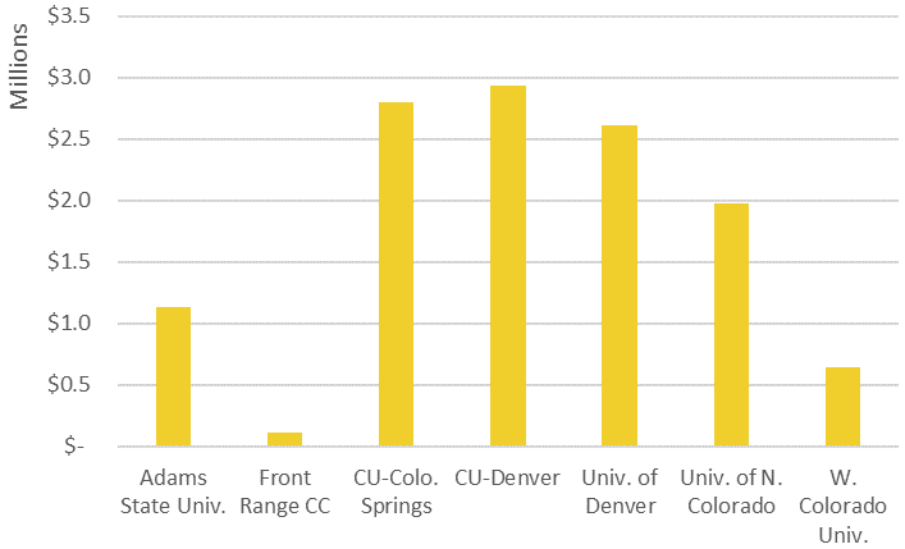
	Program(s)	Degree(s)
Fort Lewis College [2]	Anthropology	BA Minor
	Applied Anthropology	Minor
Metropolitan State University of Denver [2]	Anthropology	BA Minor
Regis University [2]	Anthropology	BA Minor
University of Colorado, Boulder [2]	Anthropology	PhD MA BA Minor
University of Colorado, Colorado Springs [1]	Anthropology	BA
University of Colorado, Denver [1]	Anthropology	MA BA
	Archaeology	MA BA
University of Denver [1]	Anthropology	MA BS [6]
	Archaeology	MA BS
University of Northern Colorado [1]	Anthropology	BA
Western Colorado University [1]	Archaeology	BA
TWO-YEAR INSTITUTIONS		
Community College of Aurora [2]	Anthropology	AA [7]
Community College of Denver [2]	Anthropology	AA
Front Range Community College [1]	Anthropology	AA
Northeastern Junior College [2]	Anthropology	AA
Pikes Peak Community College [2]	Anthropology	AA
Red Rocks Community College [2]	Anthropology	AA
Trinidad State Junior College [2]	Anthropology	AA

Notes: [1] Based on survey response
[2] Based on online research
[3] Bachelor of Arts degree
[4] Master of Arts degree
[5] Doctoral degree
[6] Bachelor of Science degree
[7] Associate of Arts degree

(2) Summary of Activity

A survey sent to all 21 Colorado institutions of higher education listed above resulted in responses from seven colleges and universities. Of those that responded, where data was provided, it is determined that in 2018 formal education in Archaeology and Anthropology at just seven of 21 community colleges and universities generated over $12.2 million in direct economic impacts. Due to the low response rate and lack of complete data among those that did respond, it is likely that the direct economic impact is much higher each year. Figure 4-17, below shows the economic impact of each of the responding anthropology or archaeology programs, which include tuition and cost of living for each degree-seeking student in the program, the combined wages of all archaeology faculty and staff, and any scholarships and grants awarded by the program.

Figure 4-17 Direct Economic Impact of Archaeology Higher Education in Colorado (2018)



Grant funding received by the program is not included in this analysis because of the overlap with the grant funding research outlined in Section 4.2A, *Grant Funding.* However, the three university programs that provided data on grant funding received $90,000 in 2018 alone to support research, fieldwork, or other academic purposes. A summary of the other data gathered from the surveys is detailed in Table 4.37, below.

TABLE 4.37 ARCHAEOLOGY HIGHER EDUCATION IMPACTS IN COLORADO (2018) [1]

SCHOOL	PROGRAM	COURSES [2]	STUDENTS [3]	COST TO ATTEND [4]	FACULTY & STAFF [5]	WAGES [6]	SCHOLAR-SHIPS & GRANTS [7]	DIRECT IMPACT [8]
Adams State Univ.	History, Anthropology, Philosophy, Political Science (HAPPSS)	10	50	$22,708	2	--	--	$1,135,400
Front Range Comm. College	Social and Behavioral Sciences	--	10	$11,123	0.25	--	--	$111,230
Univ. of Colo. - Colo. Springs	Anthropology		108	$25,843	3.5	--	$6,000	$2,797,044
Univ. of Colo. - Denver	Anthropology	48	100	$29,357	3	--	--	$2,935,700
Univ. of Denver	Anthropology	--	35	$67,656	7	--	$241,000	$2,608,960
Univ. of Northern Colorado	Anthropology	5	75	$25,494	1	$63,000	$5,000	$1,980,050
Western Colorado Univ.	Anthropology	10	25	$24,073	2	$45,000	--	$646,825
Total		**73**	**403**		**18.75**	**$108,000**	**$252,000**	**$12,215,209**

Notes: [1] Surveys were sent to 21 institutions with these seven responses. Respondents were not required to respond to every question and sometimes provided incomplete information that was not included in this analysis.
[2] Total courses taught in archaeology, anthropology, and CRM for an academic year (responses based on courses per term where multiplied based on the number of terms at the institution.
[3] Although some institutions provided data on the total number of students taught, only degree seeking students were used in this analysis to determine direct economic impact.
[4] Cost to attend is based on the U.S. Department of Education's IPEDS survey. This analysis assumes each student is a Colorado resident (i.e., lower tuition) and community college students are Colorado residents and live at home (i.e., have no room and board costs). This is done to ensure the direct impact is not an overestimate.
[5] Survey requested the number of faculty and staff primarily employed in archaeology work (not including anthropology or other disciplines). Part-time faculty and staff are represented by the appropriate fraction.
[6] Total combined wages for all faculty and staff primary employed in archaeology work (not including anthropology or other disciplines).
[7] Total scholarships and grants awarded by the department; grants received are not included in this analysis.
[8] A measure of the combined value of student tuition and living expenses, faculty and staff salary and wages, and scholarships and grants awarded.

The economic impact of informal education is difficult to quantify but are partially calculated as part of the economic impacts of events (Section 4.4A) and museum and cultural site visitation (Section 4.3B).

(3) Methodology

(A) Survey

Jason La Belle, Director of the Center for Mountain and Plains Archaeology and an associate professor at the Department of Anthropology at Colorado State University – Fort Collins, and

Gordy Tucker, Cultural Resources Team Lead and Senior Archaeologist with AECOM (a multinational engineering and infrastructure firm), were contacted early in the process of researching the economic impact of archaeology higher education because of their prior research on the number of archaeology and anthropology faculty members, students, and courses taught in Colorado.

Following discussions with La Belle and Tucker on the shortcomings of their study and areas where data could be improved, it was determined that the existing data should not be used. Instead, a 15-question survey was developed to distribute to each of the 21 higher education institutions in Colorado with relevant programs or departments. Each question also included a rationale to explain to the respondent why each question was being asked and why it was important. This approach seemed especially important for questions that required disclosure of financial information. The 15 questions on the survey were:

1. Name: What is the name of your college/university and department? This question will be used to avoid duplicate responses.
2. Other Departments: Are there other departments within your university that offer degrees or certifications in archaeology, anthropology, and paleontology? If so, what is the name of that department and who should be contacted to respond to this survey on behalf of that department? This question will be used to ensure all relevant departments within a college or university are contacted.
3. Degree Offerings: While our focus is on archaeology, we understand that archaeology programs and course offerings are often housed within larger programs. What relevant areas of study and degrees are offered by your department? This question will be used to understand the range of relevant degree offerings in Colorado, and to identify those programs that have a greater focus on archaeology.
4. Courses: How many anthropology and archaeology courses are taught per term in your department? This question will be used to understand the archaeology focus of each department.
5. Degree-seeking Students: How many students are enrolled as majors or minors in each degree program in your department? This question will be used to quantify the number of students pursuing archaeology-related degrees in Colorado.
6. All Students: How many total students are taking archaeology classes in your department (not including anthropology or other disciplines)? Please provide data for as many years as available. This question will be used to quantify the number of students taking archaeology coursework in Colorado.
7. Faculty: How many faculty members in your department are primarily employed in archaeology work (not including anthropology or other disciplines)? Please provide data for as many years as available. Please include part-time and temporary faculty as approximate fractions of a full-time employee (e.g., 4.75 for 4 full-time, 1 part-time, and 1 temporary [3-month] employee). This question will be used to assess the impact of university archaeology departments on employment in Colorado.
8. Staff: How many staff members in your department are primarily employed in archaeology work (not including anthropology or other disciplines)? Please provide data for as many years as available. Please include part-time and temporary staff as approximate fractions of a full-time employee (e.g., 4.75 for 4 full-time, 1 part-time, and

1 temporary [3-month] employee). This question will be used to assess the impact of university archaeology departments on employment in Colorado.

9. Wages: What is the approximate COMBINED salary of all faculty and staff in your department that work in archaeology only? This information will be aggregated statewide for the report and kept confidential. This question will be used to identify the direct and indirect economic impact of university employees in Colorado without requiring disclosure of too much proprietary information.
10. Scholarships: What is the total combined value of financial aid awarded to students within your department? Please include assistantships, work-study, and grants within the department, but not any financial aid awarded that is not specific to the archaeology program (e.g., Pell Grants, institutional assistance, etc.). This question will be used to assess the economic impact of archaeology programs on students in Colorado.
11. Grants Awarded: What is the total combined value of grants awarded by your department for archaeology research, fieldwork, etc. in Colorado? This question will be used to identify the direct and indirect economic impact of archaeology work being supported by the university.
12. Grants Received: What is the total combined value of grants received by your department for archaeology research, fieldwork, etc. in Colorado? This question will be used to identify the direct and indirect economic impact of archaeology work being completed by the university.
13. Value of Archaeology Work: Not including faculty and staff salaries, what is the value of archaeological work being done by your department in Colorado? This question will be used to understand the economic impact of fieldwork and research in Colorado.
14. Contact: Who is the best contact person for follow-up questions? Please provide a name, phone number, and email address. This question will be used to allow us to clarify a response or for follow-up questions.
15. Open Response: What other economic impacts are we missing?

Prior to distributing the survey, it was shared La Belle and Tucker to solicit feedback, ideas, and catch any missing questions that should be asked. Additionally, they were able to provide some input on the best time of year to distribute the survey and other strategies for increasing the response rate.

After finalizing the 15-question survey, it was distributed via email directly to the head of each department or program (unless a more relevant individual was identified) at each of the 21 Colorado institutions listed in Table 4.36, above. The email communication was sent out to all contacts on August 15, 2019, which solicited three responses. The same survey was sent to all contacts that had yet to respond on August 27, 2019, which did not result in any additional responses. The survey was again distributed to all contacts that had not responded on October 7, 2019, resulting in four additional responses over the following weeks.

(B) Economic Analysis

Using survey data from the seven responsive institutions, the analysis found the partial economic impact of archaeology higher education in Colorado. The number of degree-seeking students in each department was used to determine the overall tuition and cost of attendance that is attributed to each responding archaeology or anthropology department.

The cost of attendance is based on the U.S. Department of Education's IPEDS survey of college attendance costs (specific to each institution). The cost of attendance often depends on residency—for this analysis, lower tuition rates for Colorado residents were assumed for all degree-seeking students (where tuition rates vary based on residency). Additionally, for community college students, it was assumed that all degree-seeking students paid in-state tuition rates and live at home (i.e., have no room and board costs). This is done to ensure the direct impact is not an overestimate.

The cost of attendance values was combined with data provided on the total combined wages of all faculty and staff primarily employed in archaeology work (not including anthropology or other disciplines) and the value of all scholarships and grants awarded by the department. This data was not provided by all survey-responding institutions, so this value is also a conservative estimate.

(4) Recommendations

To support future economic studies, it is recommended that institutions of higher education record the following data points moving forward:

(A) Number of students seeking degrees in archaeology, anthropology, and other similar fields

(B) Number of students enrolled in archaeology, anthropology, or similar courses each term and academic year (to capture students taking courses as an elective or to support other degree)

(C) Number of courses taught each term and academic year in archaeology, anthropology, etc.

(D) Number of faculty members primarily employed in archaeology, anthropology, or other similar fields each term and academic year

(E) Number of staff members primarily employed to support programs in archaeology, anthropology, or other similar fields each term and academic year

(F) The total combined wages of faculty and staff primarily employed to support programs in archaeology, anthropology, or other similar fields each academic year

(G) Scholarships and grants awarded by the program to support education, research, fieldwork, etc. in archaeology, anthropology, or other similar fields each academic year

(H) Grants received by the program to support education, research, fieldwork, etc. in archaeology, anthropology, or other similar fields each academic year

(I) If possible, the total value of archaeology work (fieldwork, research, etc.) done by the program each calendar year (exclusive of faculty and staff salaries and other costs otherwise provided)

C. COLORADO ARCHAEOLOGICAL SOCIETY (CAS)

(1) Overview and Background

The archaeology community is made up of people who are passionate about cultural resources and human history. Within this community, both professional archaeologists and individuals who pursue archaeology recreationally are embraced. Both groups are highly involved in enhancing archaeological projects and the archaeology community through volunteer activities. Volunteerism in the archaeology community provides social benefits to the vocation and professional organizations, but also contributes to the economy of Colorado. Volunteers directly support local economies when traveling to projects or events, when purchasing fuel, meals, lodging, supplies, or hiring additional labor. Indirectly, archaeology volunteers develop valuable

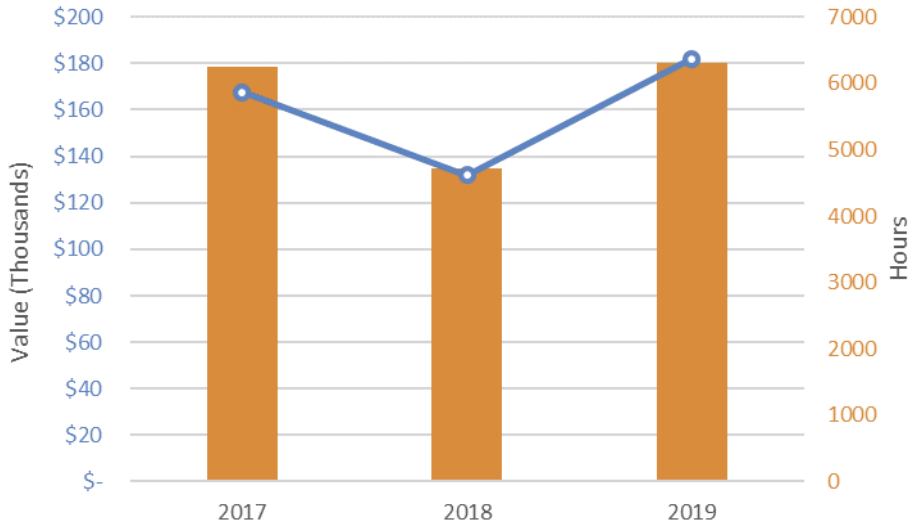
skills that may aid them in their profession, resulting in an increase in their employment or compensation.

One of the main organizations in the state that facilitates volunteer involvement is the Colorado Archaeological Society (CAS), a non-profit organization that started in 1935 for those interested in archaeology and human history in Colorado. CAS has nine official and two affiliated local chapters throughout the state—including chapters in areas as geographically and demographically diverse as Boulder, Montrose, and Pueblo. The nine official and two affiliated local chapters and their members make significant contributions to public education, research, conservation, and provide opportunities for responsible participation in archaeology.

(2) Summary of Activity

Between 2017 and 2019, CAS volunteers contributed over 17,000 hours towards archaeology projects, which generated over $481,000 in economic impacts to the state economy. Figure 4-18, below, shows how the number of hours donated by CAS members has changed over three years and the value of that time on the Colorado economy.

Figure 4-18 CAS Volunteer Hours and Economic Impact (2017-2019)



(3) Methodology

(A) CAS Volunteer Hours

Each quarter CAS produces a Science Advisory Report that summarizes member contributions to archaeological research and cultural resource conservation projects in Colorado over the previous three months and cumulatively over the past calendar year. The report is compiled by a volunteer committee and reflects self-reported contributions of time towards several archaeological research or conservation projects. CAS categorizes volunteer projects by interest area (survey, excavation, laboratory, experimental, stewardship, and curation) and by who manages the project (CAS, an external agency, or in a partnership), with external state, federal, and private organizations managing most projects. Dave Melanson, Science Advisory Committee Chair, notes that CAS members also participate in public education projects like lectures and interpretive tours, but CAS does not currently collect data on this work. The Science Advisory Report notes that although CAS membership includes professional

archaeologists, only members who donate their time as unpaid volunteers are included in volunteer hour figures.

Another source of volunteer time collected for this report is the hours dedicated to hosting archaeology-related events, which is incorporated into the analysis of the overall economic impacts of those events (see Subsection 4.4A, *Archaeology Events*). These volunteer contributions were also much less than the collective time dedicated by CAS towards archaeology projects. As a result, the significant impact of CAS members is highlighted in this section. Due to changes in methodology and perceived accuracy over time, CAS volunteer data was limited to 2017, 2018, and 2019.

Table 4.38, below, details the total known hours volunteered by CAS members towards archaeology-related efforts.

TABLE 4.38 CAS MEMBERSHIP ARCHAEOLOGY-RELATED VOLUNTEER HOURS

	2017	2018	2019
CAS Membership [1]	6,253	4,708	6,307

Note: [1] CAS member volunteer data was not consistently tracked prior to 2017.

(B) The Value of Volunteer Time

Compiled volunteer hours can be converted into an economic impact using a multiplier for the value of volunteer time. The Independent Sector, a nonprofit membership organization for nonprofits, foundations, and corporations in the charitable sector, provides an estimate for the value of each volunteer hour. These estimates are state-specific and are updated annually, which provides a method for assessing the economic impact of volunteer activities in Colorado. The Independent Sector uses a methodology recommended by the Bureau of Labor Statistics (BLS) that bases the value of volunteer time on "the hourly earnings (approximated from yearly values) of all production and non-supervisory workers on private non-farm payrolls average (based on yearly earnings provided by the BLS) for the national average." The national average is then increased by 12 percent to estimate for fringe benefits. Independent Sector, in partnership with IMPLAN, indexes this figure to determine state values.

Table 4.39, below, details the estimated value of each hour volunteered in Colorado. Value of volunteer time has not been released by The Independent Sector for 2019 and so this report assumes a three-percent increase from 2018, which is based on the average annual increase of three percent between 2009 and 2018 (the actual year-to-year change has varied anywhere between zero and eight percent).

TABLE 4.39 VALUE OF VOLUNTEER TIME [1]

	2012	2013	2014	2015	2016	2017	2018	2019
Value per Hour ($)	24.23	25.10	25.68	25.96	25.97	26.78	28.02	28.86 [2]

TABLE 4.39 VALUE OF VOLUNTEER TIME [1]

Notes: [1] The Independent Sector is the source of this state-level estimate for the value of each hour of volunteer time—a common metric used by charitable organizations to estimate volunteer impact.
[2] The value of volunteer time for 2019 was not released at the time of publishing; the value for 2019 is based on an assumed 3% increase from 2018 (the average annual increase since 2009).

The annual estimate for the value of volunteer time is adjusted from year-to-year to reflect the changing cost of labor and so these values are not further adjusted for inflation like others in this report.

(4) Recommendations

For future iterations of this report, it would be beneficial for other organizations to track volunteer activity and impact as CAS already does. CAS and other organizations could additionally record the following data point:

(A) Member participation on public education projects like lectures and interpretive tours

(B) Spending on equipment, materials, and training

(C) Spending by volunteers on transportation, lodging, meals, equipment, etc.

D. AVOCATIONAL ARCHAEOLOGY

(1) Overview and Background

Avocational archaeology encompasses the contributions of non-professional archaeologists towards preserving archaeological sites. Following the passage of the State Antiquities Act in 1973, History Colorado established the Program for Avocational Archaeology Certification (PAAC) in 1978 to expand awareness of archaeology, educate citizens on the skills and ethics of the field, and build the skills necessary for volunteers to contribute to archaeological work in Colorado.

Due to the highly specialized nature of the archaeology field, the PAAC is not considered a substitute for university education or federal government training, so most PAAC participants are not professional archaeologists. Instead PAAC participants are often retirees with an interest in archaeology, non-archaeology professionals interested in volunteering on archaeology projects on holidays and weekends, and students interested in a career in archaeology or in need of more experience or qualifications to gain employment in the field.

The PAAC provides 12 courses and certifications through local coordinators that are relevant to professional and amateur archaeologists, alike. The PAAC curriculum features 12 courses that are vetted and approved by History Colorado to ensure diversity in topics and geographic location. These courses allow participants to earn three different certifications—pedestrian survey, lab work, and scholar (for completing all courses).

The future goals of the PAAC, and those who participate in the program, may change over time. History Colorado has identified a need to share information more broadly and reach wider audiences, including Native communities and youth. Additionally, the PAAC organizers are considering new certifications that are more relevant to professional archaeologists and offering college credit in partnership with a university.

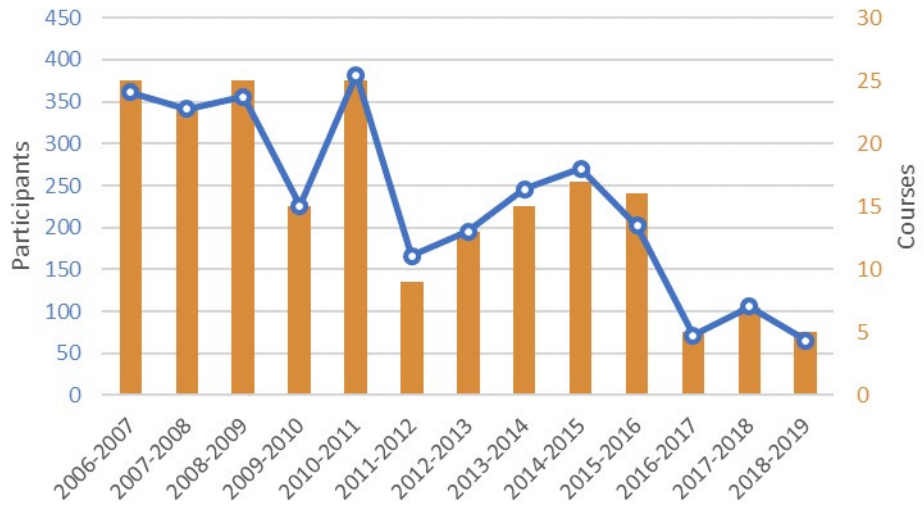
(2) Summary of Activity

Since 2006, the PAAC has offered 200 courses to almost 3,000 participants, developing the skills and ethical training necessary for avocationalists to contribute to the preservation of cultural history in Colorado.

Over the years the PAAC has generally been offering fewer courses over time and fewer people are enrolling overall (see Figure 4-19, below). Table 4.40, however, shows that despite this trend the average enrollment in each course has been relatively consistent. This suggests that participation in PAAC may be closely tied to the number of courses offered as opposed to indicating less overall interest in the program.

The economic impact of the PAAC program is not well understood because data on PAAC attendee spending and the cost of organizing, hosting, and teaching PAAC courses is not tracked. Data on volunteerism through CAS is well-documented in Subsection 4.4C, *Colorado Archaeological Society (CAS)*, but PAAC-specific involvement is not tracked separately. Qualitative economic analysis suggests that PAAC participation would result in direct economic benefits from travel (transportation, lodging, dining, etc.), equipment and materials needed for the course, and the indirect professional benefit from certifications and college credit.

Figure 4-19 PAAC Courses Offered and Participation (2006-2019)



(3) Methodology

Data on the PAAC has not been consistently kept since the start of the program in 1978. Data from recent years is reliant on a variety of documents and spreadsheets about each PAAC class, with very little year-to-year tracking. Rebecca Simon, Assistant State Archaeologist and PAAC coordinator, sorted through hardcopy documents, annual reports, and other spreadsheets compiled by History Colorado as far back as the 2006-2007 program year and tabulated data on PAAC courses offered and number of participants enrolled per program year. Data on the number of workshops and labs offered was consolidated with PAAC classes taught and workshop and lab enrollment are combined with enrollment in PAAC classes. The number of certifications awarded and the number of participants earning college credit was provided for years when that information was tracked and reported. Table 4.40, below, summarizes the data provided.

TABLE 4.40	PAAC PARTICIPATION (2006-2019)				
YEAR	COURSES [1]	PARTICIPANTS [2]	AVG. ENROLLMENT	NEW CERTIFICATIONS	COLLEGE CREDIT [3]
2006-2007	25	361	14	13	NR
2007-2008	23	341	15	5	12
2008-2009	25	356	14	4	15
2009-2010	15	226	15	13	13
2010-2011	25	382	15	5	8
2011-2012	9	166	18	NR	NR
2012-2013	13	195	15	NR	NR
2013-2014	15	246	16	NR	NR
2014-2015	17	270	16	NR	NR
2015-2016	16	202	13	NR	NR
2016-2017	5	71	14	NR	NR
2017-2018	7	106	15	NR	NR
2018-2019	5	65	13	NR	NR
Total	200	2,987	15	40	48

Notes: [1] Courses includes labs and workshops.
[2] Participants in labs, workshops, and classes.
[3] Number of students earning college credit.

(4) Recommendations

To support future economic studies, it is recommended that PAAC record the following data points in the future:

(A) Length of each course (hours and/or days, as applicable)

(B) Differentiate among the number of classes, workshops, and labs offered and the participation under each category

(C) Certifications awarded and college credits earned (as applicable)

(D) Time contributions of PAAC instructors and volunteers

(E) Spending by PAAC on equipment, materials, staff training, and staff salaries

(F) Spending by PAAC participants on transportation, lodging, meals, equipment, etc.

5. RESOURCES

2010 Cultural Heritage Traveler. U.S. Department of Commerce National Travel and Tourism Office. 2010. http://culturalheritagetourism.org.temp.realssl.com/wp-content/uploads/2015/09/2010-cultural-heritage-profile.pdf

2014 Cultural Heritage Traveler. U.S. Department of Commerce National Travel and Tourism Office. 2014. https://culturalheritagetourism.org/wp-content/uploads/formidable/2014-cultural-heritage-profile-USGov.pdf

Colorado Travel Year 2008: Final Report. Longwoods International. 2009.

Cultural and Heritage Tourism Toolkit Part 2: Who are Heritage Consumers? Colorado Tourism Office. 2017. https://industry.colorado.com/cultural-heritage-tourism-toolkit-part-2-who-are-heritage-consumers

New Partnerships to Share 'Care for Colorado Principles' with Millions of Colorado Travelers. Colorado Tourism Office. 2019. https://choosecolorado.com/new-partnerships-to-share-care-for-colorado-principles-with-millions-of-colorado-travelers/

The Cultural and Heritage Traveler. Mandala Research, LLC. 2013. http://mandalaresearch.com/wp-content/uploads/2017/01/free_download_CH_2013.pdf

The Historic/Cultural Traveler. Travel Industry Association of America. 2003. https://culturaltourism.thegossagency.com/cultural-tourism-whitepaper/2009 Study Revealed

The State of the American Traveler. Destination Analysts, Inc. 2008. http://www.destinationanalysts.com/wp-content/uploads/2016/03/TheStateoftheAmericanTraveler-July2008.pdf