Escalante Museum and Science Center

Feasibility Study

February 25, 2019

INFORMAL LEARNING EXPERIENCES, INC.

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Table of Contents

PAGE

Executive Summary 1

Introduction 2

Purpose of Study 2

Consultant 2

Background 2

Expectations 3

Process 3

Meetings and Interviews 3

Site Visits 5

Regional Context 7

Strategic Niche 11

Content and Presentation 12

Others with Similar Foci 13

Location 15

Escalante Heritage Center 16

Interagency Visitor Center 17

Collaborators/Partners 20

Target Audiences 21

Operations and Management 19

Site Requirements 22

Building Requirements 23

Construction/Capital Costs 24

Operations 26

Visitors 26

Funding Options and Opportunities 27

Construction/Capital Funding 27

Operational Funding 28

Earned Revenues 28

Contributed Revenue 28

Foundations 28

Government Agencies 28

Other 29

Conclusions and Nest Steps 29

References 30

Addendum 31

Executive Summary

There is a broad desire for development of an interpretive/educational center devoted to the diverse natural science of central Utah and Garfield County with special attention paid to the array of world-class paleontological resources that are being rapidly discovered. Research projects are active across the region, with the Natural History Museum of Utah and the Denver Museum of Nature & Sciences teams making very significant discoveries. The proposed center, likely located initially at the Escalante Interagency Visitors Center, will be expected to attract numerous visitors travelling on Scenic Byway Highway 12 between Bryce Canyon National Park and Capital Reef National Park. This route has been designated an All-American Scenic Highway and is attracting increasing traffic every year. The development of a substantial natural science attraction in Escalante will provide significant educational, cultural and interpretive benefits for the area while bringing important economic benefits to the community. The Visitor Center has modest facilities currently available for this use. Minor modifications to existing facilities, coupled with phased construction of new facilities can provide a means to house and display locally-collected paleontological, archeological and ecological materials. The multiple research projects currently under way will enhance the educational functions of the natural science center, and may develop into a Field Station for enhanced regional investigations. Coordination and cooperation between the BLM, Garfield County, and additional stakeholders is an essential part of the project development. Also, Southern Utah University and Dixie State University see their collaborations with the center facilitating a variety of student and faculty opportunities. As planning proceeds, both capital and operating budgets will be further developed. Further work needs to be done with both aspects of the budget as well as sources of earned and contributed revenues. Securing funding will be a challenge, necessitating that the facility be developed in stages, starting with the exhibits and programs in the existing buildings at the Visitor Center. In the context of the natural resources, research and educational facilities, and growing tourist markets there is a clear place for the proposed natural science center. This study is encouraging in that it supports the interest being expressed and recommends that the natural science center proceed.

Robert Mac West
Informal Learning Experiences

Introduction

Purpose of Study

This feasibility study involves the examination of a natural science interpretive and research center project in Garfield County, Utah. The science center project has been discussed in the Garfield County/Escalante area for over two decades. Now it has been formalized by means of this county-funded feasibility study. The study looks into the needs and expectations of Garfield County and the Escalante community, the scientific resources to be interpreted and studied, the economics of the proposed center, and the agencies, organizations, and government units involved. The geological, paleontological, archeological, and environmental assets of the Grand Staircase Escalante National Monument are the focal point but research may extend to the entire Central Utah region.

Consultant

The study is conducted by an independent, Denver-based consulting firm, Informal Learning Experiences (ILE). The principal of ILE is Robert Mac West, a PhD paleontologist and former museum director who is very familiar with the many aspects of an interpretive center/natural science museum/science laboratory array of attractions and facilities. He has worked with the County, primarily Commissioner Jerry Taylor, County Public Lands Coordinator Brian Bremner and economic development consultant Drew Parkin– to examine the various elements as described and investigated via this report. This has been done through numerous meetings and conversations with a wide array of individuals and organizations in the immediate region as well as researchers and regional natural science museums. Information gathered through these efforts is central to the analysis presented here but with the clear understanding that no particular idea or concern is attributed to a specific source.

Background

The "Fact Sheet on the Proposed Escalante, Utah, Museum/Science Center" prepared by Drew Parkin on June 19, 2018 is the description of the mission, objectives and scope of the facility that is used in the study. That document is attached at the end of the report.

The facility will provide research opportunities and public access to exhibitions and activities that interpret the region's significant, and in many cases unique, natural and cultural history and science resources. This will be done through local study of BLM, Park Service and Forest Service resources, as well as work in research facilities in Utah and likely Colorado and Arizona. The facility will be an additional attraction to the local population and the increasing tourist population driving along Science Byway 12 between Bryce Canyon National Park and Capitol Reef National Park. It is seen to be both an economic enhancement via attracting more tourists to

Escalante as well as a means of generating greater scientific and interpretive interest in the remarkable natural environments and history of Garfield County. The research component has a significant scientific impact far beyond Escalante. Further, it is expected that the facility will be a resource for ongoing and newly-generated research projects, thus being a destination for researchers and students at various levels.

For several years Garfield County has made strong arguments in favor of increased economic development, enhanced tourist and visitor attractions, and the essential role of science and natural resources in the region. Special attention is given in the 2016 draft Garfield County Resource Management Plan and the 2018 Garfield County Economic Development Plan to the development of a natural science museum and field station. The details of the arguments are well articulated in both documents.

Expectations

ILE conducted this feasibility study as a neutral and independent outsider. The question being investigated is "does it make sense" for the proposed natural science center to move forward and, to a limited extent, how will it be done? It is to the County's credit that it is making this investment prior to making a decision about the proposed facility.

Process

ILE was engaged in summer 2018 to conduct this study. This has involved three multi-day visits in July, August and October to Escalante and surrounding areas and one visit to the Natural History Museum of Utah in Salt Lake City. During those visits, as well as separately, Dr. West has met and had telephone conversations with over 50 individuals, mostly in southern Utah, representing Garfield County, local organizations, federal agencies (BLM and NPS), museums and universities, and engaged individuals (see list below). They have been very helpful and forthcoming about the proposed facility, and the economic, political, scientific, and cultural world of southern Utah. While, as is to be expected, they had varying ideas, suggestions, concerns, etc., the overall response is that it is important to effectively interpret the regional natural science (broadly defined). How, where, and by whom this is best done comes in various ways. The good news for this study is that no firmly negative responses were encountered – although that option was clearly available in all of our conversations.

Meetings and Interviews

- Allysia Angus, Scenic Byway 12 Committee
- Mark Austin, Owner/Partner Austin/Witzdam Builders LLC
- Harry Barber, Acting Manager, Grand Staircase Escalante National Monument
- Larry Barnes, Retired paleontologist
- Louise Barnes, Escalante City Council
- Melissa Bechhoefer, Director of Integrative Collections, Denver Museum of Nature and Science

- Melanie Boone-Reznick, Former staff, Grand Staircase-Escalante Partners
- Brian Bremner, Garfield County Engineer and Public Lands Coordinator
- WaLon Brinkerhoff, Mayor of Tropic
- Matt Brown, Kanab City Economic Development Director
- Garrett Cottam, Banker, private tourism business owner
- Myron Cottam, Garfield County School Board
- Cheryl Cox, Garfield County School Board
- Steve Cox, Mayor of Boulder
- Nicole Croft, Executive Director, Grand Staircase Escalante Partners
- Larry Crutchfield, Public Affairs Officer, GSEMN, Kanab
- Wes Curtis, Executive Director, Regional Services, Southern Utah University
- Kendall Farnsworth, Manager, Petrified Forest State Park
- Sarah George, Director, Natural History Museum of Utah
- Jacqualine Grant, SUU Biology Professor and Natural History Museum Director
- Quinn Griffin, Escalante Heritage Center Board
- Ann Hannibal, Associate Director for Community and Government Relations, Natural History Museum of Utah
- Pamela Hanson, Operations Director, Canyon Country Discovery Center, Monticello
- John Holland, Board of Tourism Development, Utah Office of Tourism
- Howard Hutchison, Retired paleontologist
- Randall Irmis, Curator of Paleontology, Natural History Museum of Utah
- Katja Knoll, Kanab Paleontology Laboratory Supervisor
- Lisbeth Lauderback, Curator of Archeology, Natural History Museum of Utah
- Frank Lojko, Vice President, Government Relations, Dixie State University
- Chad Lyman, Business Operations Manager, Escalante Heritage Center
- Greg McDonald, Regional Paleontologist, Bureau of Land Management
- Peggy Meisenback, Escalante Heritage Center Board
- Ian Miller, Department Chair of Earth Sciences and Curator of Paleontology, Denver Museum of Nature and Science
- Jens Munthe, Retired paleontologist
- Kathy Munthe, Community volunteer and active ornithologist
- Mike Nelson, Manager, Anasazi State Park Museum
- Falyn Owens, Executive Director, Garfield County Office of Tourism
- Drew Parkin, Garfield County Economic Development Consultant
- Bruce Pavlik, Director of Conservation, Red Butte Gardens, University of Utah
- Gayle Pollock, Executive Director, Bryce Canyon Natural History Association
- Steve Roberts, Past owner, Escalante Outfitters; active in Escalante community enhancement
- Scott Sampson, Paleontologist, formerly at Natural History Museum of Utah, Denver Museum of Nature and Science, now President and CEO of Science World, Vancouver, British Columbia
- Susan Schmidt, Grand Staircase-Escalante National Monument, Big Water Visitor Center Manager,

- Joseph Sertich, Curator of Paleontology, Denver Museum of Nature and Science, Board Member, Grand Staircase Escalante Partners
- Ramona Sorenson, Escalante Heritage Center Board
- Shannon and Jennifer Steed, Wild West Retreat
- Lance Syrett, Ruby's Inn Manager; Board Chair, Utah Board of Tourism Development
- Craig Tanner, Visitor Services Manager, Grand Staircase-Escalante National Monument
- Jerry Taylor, Garfield County Commissioner
- Monica Taylor, Escalante Heritage Center Board
- David Tebbs, Garfield County Commissioner
- Alan Titus, Lead Paleontologist, Grand Staircase-Escalante National Monument,
- Melani Torgersen, Mayor of Escalante
- Terrance White, Architect, Naylor Wentworth Lund Architects; Escalante Heritage Center Board Chair
- Arthur Wolf, Wolf Consulting, Las Vegas

The information and suggestions/recommendations provided by this diverse group of people are incorporated into the report sections that follow. In general, there is a strong interest in more natural science interpretation and presentation to the public. This is coupled with the desire to have some of the locally-collected paleontological materials available for display in Garfield County – with some awareness of the facility requirements to do so. It is important that the County, the BLM, and the research world collaborate and strengthen one another.

There is a clear expectation that a development in Escalante will have a positive economic impact.

Site Visits

The study included visits to the four BLM visitor centers – Kanab, Big Water, Cannonville and Escalante, Escalante Petrified Forest State Park, and Anasazi State Park Museum, Escalante Heritage Center, St. George Dinosaur Discovery Site at Johnson Farm, the Natural History Museum at Southern Utah University in Cedar City, Canyon Country Discovery Center in Monticello and the Natural History Museum of Utah in Salt Lake City. Dr. West also utilized his personal experience with natural history and dinosaur museums and interpretive centers including Denver Museum of Nature and Science, Dinosaur National Park, The Field Museum, Smithsonian National Museum of Natural History and the Milwaukee Public Museum (where he was the curator for a major geology/paleontology gallery).

Above: *Big Water Visitor Center*

Right: *Kanab Visitor Center*

Left: *Dinosaur Discovery*

Right: *Southern Utah University Natural History Museum*

Regional Context

With this initial awareness of the presence of the natural science center in the County's planning process, the report now will examine the region in which the center will be located in terms of population, tourism, economics and unique resources.

The County context in which the proposed center is to function is introduced in Garfield County's 2017 Resource Management Plan and is laid out very broadly in the September 2018 Garfield County Economic Development Pan., The plans are very specific about the need for new or expanded interpretive assets that will provide realistic stimuli for local economic development as well as better use of the remarkable natural and cultural resources of the County, which contains a large segment of the GSENM and its geological, paleontological, environmental and cultural/historical resources.

Garfield County has the lowest population density of all the counties in Utah – the 2017 total population estimate is 5,078 or 0.99 people per square mile. Kane County to the immediate south is a bit more populated with 7,567. Escalante itself has a population of 793 (City-Data) and county seat Panguitch has 1,490 (City-Data). The south central Utah region, of which Garfield County is a component, is one of the least densely populated places in the 48 contiguous United States. The essential conclusion is that Escalante, Garfield County and the surrounding region has a very small resident population to support the proposed facility. Thus the success and sustainability of the proposed center will rely heavily on a) the scientific research community and b) tourist traffic and effective marketing to attract the region's numerous visitors. Following is a population trend line for Garfield County and Escalante:

Year	Garfield Population	Escalante Population	Data source
2000	4735	818	City-data; US census
2006	4534		State of Utah
2010	5172	797	State of Utah; US Census
2016	5195	787	City-data; US Census
2017	5078	802	US Census; City-data
2019		793	City-data
2020	6063 (est)		State of Utah

With the help of ESRI we have generated data on 10, 15, and 25-mile rings around Escalante to further define the local population:

Radii from center	10 miles	15 miles	25 miles
Escalante Population			
2018 total population	940	1207	1245
2023 estimated population	930	1194	1232
2018 families	240	315	328
2023 families	236	309	320
2018 age 18+	81.10%	81.00%	81.20%
2013 age 18+	81.40%	81.60%	81.50%
Education levels 2018			
High school graduate	25.90%	26.00%	26.00%
Associate degree	13.70%	13.60%	13.60%
Bachelor's degree	20.30%	20.20%	20.20%
Graduate/professional degree	10.20%	10.20%	10.20%

Another approach to assess the area population is to determine road miles from central Escalante and what populations are within 30 to 60-minute drives. This calculation shows Boulder as a 30-minte drive from the northeast and Henrieville 40 minutes to the southwest. Since Highway 12 is the only primary road, all these statistics reinforce the conclusion that Escalante is a remote location.

Escalante's proximity to National Parks and location on Highway 12 (a state designated Scenic Byway and a federally designated All-American Highway) provides a very significant tourist population, growing noticeably annually, many of whom are making their way between Bryce Canyon National Park and Capital Reef National Park. The attendance at the Petrified Forest State Park, Escalante Visitor Center, Cannonville Visitor Center and Anasazi State Park and Museum indicates that there is substantial interest in the local environment and attractions. Similarly, there is good attendance at Kanab and Big Water visitor centers, although these are on a different highway pattern and there is limited direct connection between the southern sites along highway 89 and those on the Highway 12 route.

The designation of Highway 12 as a Scenic Byway and All-American Highway has significantly impacted traffic – up significantly since designation in 2002. The 2014 study for the Scenic Byway 12 Foundation showed that a large majority of travelers are aware of the designation, and many of them traveled on Highway 12 for that reason. Approximately 80% of the traffic on SR-12 is non-residents, the large majority of whom are there on vacation during the spring, summer and fall months. Thus there is a definite economic impact in terms of both time and money spent.

The Escalante Heritage Center notes that tourism is up 15% in each of the past two years and suggests as much as a 50% increase in restaurant revenue.

Scenic Byway US 12 source: https://www.pinterest.com/pin/505951339364131943/

	2001	2012	2015-16	2017-18	Distance & time from Escalante VC
Cannonville VC			35,097	33,836	33 miles; 37 minutes
Escalante VC	34,899	55,699	76,179	80,839	
Big Water VC			33,097	24,675	176 miles; 3 hr, 4 min
Kanab VC			45,479	71,375	120 miles; 2 hr, 16 min
Anasazi Indian Village State Park Museum	32,975	20,119	20,824	20,062	29 miles; 43 min
Escalante Petrified Forest State Park			52,110	64,693	1.6 miles; 4 min
Capitol Reef National Park	527,760	673,345	946,029	1,150,165	68 miles; 1 hr, 37 min
Bryce Canyon National Park	1,068,619	1,385,352	1,745,804	2,571,684	48 miles, 56 min

Various sources - BLM, Utah State Parks, National Park Service, Google Maps

Traffic data clearly shows that it is seasonal: January-March = 6%; April-June = 35%; July-September = 46%; October-December = 14%. This is reflected in the attendance at the germane attractions. For example, here is the monthly attendance at Petrified Forest State Park and Anasazi Indian Village State Park July 2017 to June 2018:

Month	Petrified Forest	Anasazi	Bryce Canyon	Capitol Reef
July	898	1,836	416,608	137,856
August	12,041	1,353	403,964	113,514
September	8,531	3,235	380,586	168,104
October	3,774	1,521	243,118	119,114
November	4,995	1,548	74,761	48,101
December	916	107	49,013	20,266
January	182	81	32,433	15,526
February	828	152	37,132	21,053
March	4,942	959	95,204	84,364
April	8,788	2,764	185,282	137,321
May	10,594	3,823	340,351	193,280
June	8,295	2,682	409,467	149,564

Sources: National Park Service, Utah State Parks

Total taxable sales and use of accommodations in Escalante and along Highway 12 has more than doubled since the designation as an All American Scenic highway.

Strategic Niche

The Grand Staircase Escalante National Monument is very well known for outstanding vertebrate paleontological discoveries. Dinosaurs, in particular, continue to add extensively to understanding of the North American late Mesozoic as represented by the sedimentary rocks that make up the Kaiparowits Plateau. But there are researchers in other areas as well – broad areas of geology, ecology, archeology, environments, aquatics, etc. There is a full listing in the GSENM Annual Manager's Report for 2016, pages 35 – 56. This listing includes researchers in an array of organizations – universities, museums, BLM units, NPS units, corporations and research groups – from 16 states and four foreign countries (Australia, France, Germany and Japan). It is clear that southern Utah is a hotbed of research and that the proposed natural science

Natural History Museum of Utah

facility would have a huge array of topics and resources to make available to its publics.

The discoveries in GSENM attract national and international attention. For example, the announcement of the new horned dinosaur, *Akainacephalus johnsoni*, described by Dr. Randall Irmis of the Natural History Museum of Utah and now on exhibit in that museum, was featured

in newspapers ranging from the Salt Lake Tribune to the New York Times and online via National Geographic, Newsweek, Scientific American and the Daily Mail in the UK in July 2018.

Current interpretive centers feature aspects of the local science; the four BLM visitor centers each have an emphasis: Big Water – paleontology; Kanab – archeology and geology; Cannonville – early Paiute and pioneer life; Escalante – botany, ecology and biology; The Petrified Forest State Park focuses on petrified wood, Anasazi State Park Museum focuses on local archeology, and a new natural history center is in an early planning stage in Kanab.

While paleontology and archaeology are the most well-known of the sciences in the local area, the emphasis for an Escalante facility is more broadly (and modernly) defined as Natural Science, as it intends to engage its visitors in the paleontology, archeology, ecology, and human histories of southern Utah and the very interesting and relevant aspects of the modern environments and natural events that are occurring now.

Content and Presentation

The proposed center's public area is to be primarily exhibitions and presentations. There is expectation that visitors will see some of the remarkable specimens that have been excavated and collected in recent years. Fortunately, the primary museums where the local specimens are currently housed – the Natural History Museum of Utah and the Denver Museum of Nature & Science – will provide casts of selected specimens for appropriate display and interpretation.

There is a strong desire for the center to show "science in action" via working and publicly visible paleontology, archaeology and natural science laboratories. If appropriately designed and staffed, such laboratories could also process other collected materials that require treatment as a part of the research process or prior to placement in the storage facility.

In order to house materials collected locally there will be a permanent curation/museum facility. This will enable the center to retain specimens, consistent with applicable federal and state laws and with the Garfield County Resource Management Plan.

An example of disciplines that are receiving broad attention at this time is archeology and interesting aspects of Native American culture. The Natural History Museum of Utah Curator of Archeology Lisbeth Louderback and colleagues have discovered the earliest occurrence of wild potatoes with a primary site at the North Creek Shelter near the Slot Canyon Inn four miles northwest of the Escalante Visitor Center. The specimens date back to over 10,000 years ago and are part of a broad array of stone tools, faunal remains and heaths and pits. This is clearly a fascinating local discovery that will work well in the center. With regard to archeology, it is important to note that the Anazasi State Park in Boulder, Utah provides excellent interpretation of the Anazasi culture. Care must be given to complement, not duplicate, the State Park's efforts.

This is an excellent opportunity to engage the native community since several local groups are involved in this research and it is their history. The Hopi and Navajo are not yet engaged in this discussion but there are suggestions that they should be, especially with archeology as one of the

topics for the center's program. While their reservations are not in Garfield County, they are part of the cultural history of the relevant area.

There is strong agreement that natural science should be interpreted broadly but that paleontology is likely the most attractive/interesting/current general topic. The next question that the feasibility study must address is what will it take in the way of a facility and programs to do all of this?

Thus the project is looking at a facility with three function areas.

1. Exhibitions, programs and daily operations (e.g., offices, guest areas, storage). This is the front of the facility and is the museum or interpretive center. This can occupy existing space in the Escalante Visitor Center.
2. Fossil/specimen preparation, research and storage, visible to the public, meets standards appropriate to the BLM's Paleontological Resources Preservation (PRP) requirements.
3. Full specimen storage that meets PRP for materials collected locally and available for research and potential exhibition use.

In addition, there is an expectation that the center will operate a research field station. The location is undefined. It might be within walking distance of the formal center or might be in a carefully selected site with appropriate environmental resources and surroundings. This would be a place for focused research, systematic data collection, etc. It can be a place for citizen science projects as well as more formal academic initiatives.

Others with Similar Foci

The varied reasonably local visitor centers and state parks are mentioned above.

Places with public fossil preparation and research labs are good comparables, given the importance that is placed on public participation and observation of science in action as well as the desire for the natural science center to be a focal point for researchers.

There are numerous museums and interpretive centers that have fossil preparation laboratories that are accessible or at least visible to the public. Both of the primary museum partners – the Natural History Museum of Utah, Salt Lake City, and the Denver Museum of Nature and Science – offer visitors the opportunity to see fossils being cleaned and prepared for study by museum paleontologists as well as appropriately stored in the museum collections. Because of the importance of the fossils recovered from the GSENM, it is important to recognize preparation laboratory facilities that focus on nearby sites. It is notable that none of these sites are located in the intermountain region. Facilities that are most similar to the proposed Escalante Science Center are the Gray Fossil Site in Tennessee, the La Brea Tar Pits, part of the Natural History Museum of Los Angeles County, the Judith River Dinosaur Institute in Billings, MT, and Timber Lake, South Dakota. Looking farther, there are very popular labs at the Field

Museum in Chicago, the National Museum of Natural History in Washington, DC, the American Museum of Natural History in New York, and the Academy of Natural Sciences of Drexel University, Philadelphia.

Denver Museum of Nature & Science

Natural History Museum of Utah

Gray Fossil Site – active excavation and onsite preparation. Operated by East Tennessee State University. Pliocene vertebrates

Judith River Dinosaur Institute – preparation facility that takes in specimens from most of Montana, including expeditions organized by the center. The Institute is working in association with museums, universities, private and public land management agencies to identify, research and protect those sites

La Brea Tarpits is a unit of the Natural History Museum of Los Angeles County. Active research and Pleistocene fossils being excavated right there. Visible prep lab. Thousands of specimens from site that is publicly accessible. Also, the Dino Lab in the natural history museum – full preparation of research and exhibit materials.

Bob Campbell Geology Museum, Clemson, SC, part of Clemson University. Active prep lab for fossils from many different places – not necessarily local.

Location

From the start there was a clear expectation that the center will be in Escalante. The study examined several locations across the east-west width of the community. These include the Escalante Heritage Center on the east side, a to be determined "urban" location in the commercial/residential center of the town, and the Interagency Visitor Center on the west side of the community. The total distance between the potential locations is less than 3 miles or 5

minutes driving time. The Visitor Center is the most desirable initial location for several reasons: cost, available space, relationship with BLM and established presence for the tourism market.

Escalante, with the Escalante Heritage Center at the east (right) side and the Escalante Interagency Visitor Center at the west (left) side. Distance between the sites is 2.3 miles.

Escalante Heritage Center

The primary focus of the Escalante Heritage Center is the settlement and social history in the 19th and 20th centuries. The Hole-in-the-Rock Expedition is a fascinating story that is characteristic of and relevant to the colonization of southern Utah. The Heritage Center is an independent non-profit that is looking to expand its exhibit area and is interested in developing an exhibit facility devoted primarily to the Hole-in-the-Rock Expedition and early Escalante area settlement... The Heritage Center site is attractive, with good access from Highway 12, a large (9 acre) open area, and a delightful view of the topography to the south of the site. It also has adequate public restroom facilities.

Architectural drawings have been prepared for the museum facility, and in 2015 the Center's steering committee commissioned EDX of Seattle to prepare the exhibit conceptual design which is awaiting implementation in the to-be-constructed building. The estimated cost of the facility is $6 million.

Arrival at the Escalante heritage Center

Currently, the Escalante Heritage Center's focus is almost exclusively the Hole-in-the Rock expedition and early colonization and settlement efforts. Natural science, paleontology and archaeology are not emphasized. There is plenty of room for a second building that could house the natural science center and the board of the Escalante Heritage Center is interested in pursuing that possibility.

However, developing the proposed Science Center at a site separate from that of the future Heritage Center may increase the tourism potential of the area by having viable attractions on either side of Escalante. As described below, the availability of the Interagency Visitor Center as the site of the natural science center significantly increases the time and money visitors will spend in Escalante. Thus the two complementary facilities and programs will jointly be a significant economic asset for the community.

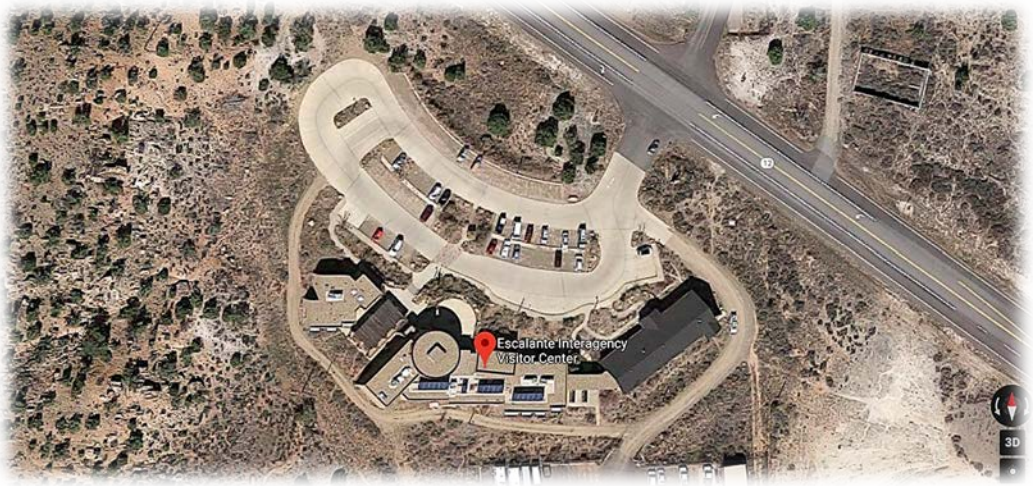
Interagency Visitor Center

The initially preferred location of the natural science center is at the Interagency facility on the west side of Escalante operated collectively by the BLM, Forest Service and National Park Service. The existing programmatic focus of the Interagency Center is botany, ecology and biology, so positioning the natural science center here is consistent with and an expansion of this emphasis.

As can be seen in the aerial view below, the Escalante Interagency Visitor Center is immediately adjacent to Highway 12 and is a visually attractive and complex building. The circular area is the

public entrance with visitor facilities and BLM offices behind it. There is a smaller under-utilized building at the west end of the complex.

Because of current functions, the entry area with admissions and information desk, gift shop, etc. is in the large building, thus it will be necessary to sort out the relationship of this area to entrance to the natural science center and its functions and revenue sources. The smaller building can easily be the focal point for the initial stage of the natural science center. The aerial photo and site plan (p. 20) plus interior pictures demonstrate the complexity of this building and its functions. The ways by which this can house and support the natural science center are discussed below in the section labelled Operations and Management.



Escalante Interagency Visitor Center adjacent to Highway 12

Potential exhibit or laboratory area

Main entry gallery with information desk and gift shop

Three-dimensional topographic model of the Escalante area in the entry exhibition

A visitor trail to the southwest will quickly engage visitors with the local natural environment where people will encounter fossil wood and perhaps bones. It also can easily be developed into a citizen science site for dedicated participants as well as some casual visitors.

View at the rear of the smaller building which can open to a visitor trail.

Collaborators/Partners

The natural science center will require relationships with active researchers and collectors such as those currently permitted for work on the monuments and BLM land. With development of the desired research and storage facility, specimens and collections from southern Utah can be kept and displayed locally and appropriately. The collector relationships must be confirmed via the formal Memorandum of Understanding process. Several already are in place. The Natural History Museum of Utah is the primary one with active research in both paleontology and archeology. Denver Museum of Nature & Science paleontologists are active in the area and are logical partners for the natural science center. It will also be useful to look toward SUU and Dixie State for students and possible educators/presenters. Dixie State's Active Learning Active Life service projects are potential sources of both students and regional marketing and promotion. SUU currently operates a "Semester in the Park" program that could be expanded into the Escalante area.

It is clear that Garfield County and the BLM must have a formal agreement for the operation of the center. There are good examples of formal partnerships between universities and parks and monuments. For example, SUU and Bryce Canyon National Park work well together, as demonstrated by the Semester in the Park program cited above.

There are recommendations that there be a community advisory board drawn from Escalante and beyond to work with the natural science center planners and programmers.

Target audiences

The center will serve several different audiences, each with different needs and expectations. It is important that all planning take into account that there will have to be different programs and activities at different times and dates, depending on the likely audiences, the availability of resources and the timing of natural systems' activities. For example, the programming on the visitor trail will differ depending on the season.

A regular audience will be general tourists, arriving mostly by private vehicle. The center is a casual stop along Highway 12 and with effective marketing will cause tourists to want to expand their stay to further explore the interesting natural resources of the region.

There will also be focused tourists, usually part of organized groups via bus or caravan. They will be topically interested in paleontology, archeology, etc., and will spend more time in Escalante or easily accessible nearby sites.

Public school groups may be limited given the regional spatial populations and time of travel. However, it will be important for the center to have programming that is supportive of the Utah curriculum. Garfield County experiences some educational tourists usually associated with geologic programs from midwestern universities. These may be expanded to other disciplines as the Science Center develops.

An important audience will be natural science specialists ranging from hobby groups to visiting specialists to graduate students, etc. There will be a broad range of engagement levels here, including residential students and researchers.

At least 150 bus tours pass through Escalante every year. Many already stop at the visitor center. When the natural science center is open it is likely that a reasonable number will extend their time in Escalante to include the natural science experience.

Finally, groups such as the Dixie State University Road Scholars, with their National Parks and Monuments focus, are likely to include the natural science center in their programs.

As this diversity of audiences is anticipated there should be a measurable impact on their understanding and appreciation of the natural world of southern Utah, both past and present. It's very likely that the natural science center experience will cause many visitors to also visit other

visitor centers, local museums, roadside attractions and so on in their movement through the area. And, as mentioned above, there will be a positive economic impact on Escalante.

Operations and Management

The most logical organization for day to day and overall management of the science center is the BLM, as an extension of the existing visitor center. Under this scenario, BLM will cover many of the basic building operations including overall maintenance, utilities, security, and essential repairs. The science center will have a dedicated staff and volunteers and will have responsibility for daily operations within its facility, public programming, maintenance and improvement of exhibits, collections, and research activities. There are also opportunities for contracting these functions, all or in part, with partner organizations such as the Glen Canyon Natural History Association or the Bryce Canyon Natural History Association. In addition, there will be the formal agreements with the researchers and their organizations (e.g., Natural History Museum of Utah, Denver Museum of Nature & Science, Southern Utah University, and Dixie State College) that facilitate the ongoing scientific and educational activities. Partnership/ contractor arrangements will have the advantages of a) integrating the natural science center into the existing array of entities, b) taking advantage of skill sets and intellectual resources currently in place, c) keeping the operating budget of the center as focused and modest as possible, and d) including local groups and individuals in the Science Center's operations. Finally, the building and collections will be owned by the BLM and partner federal agencies.

Site Requirements

Currently, the most feasible location is inside, connected to, or on the same property as the Escalante Interagency Visitor Center. Co-location will require a very specific cooperative agreement of Garfield County with the BLM. The agreement will include specific obligations of the BLM for building support and maintenance, security, outdoor areas (e.g., educational trail) while the County (perhaps through a contracted organization) may assist the BLM by providing staffing, programs, etc. A further aspect of the programming will be formal agreements with research organizations, including the Natural History Museum of Utah, the Denver Museum of Nature and Science, Southern Utah University, Dixie State University and perhaps others for support of their field work accompanied by opportunities for recently-collected specimens to be prepared, processed and studied on site. Specimens will be placed in appropriate on-site or nearby storage, and many will be relocated to the research institutions for additional work or storage.

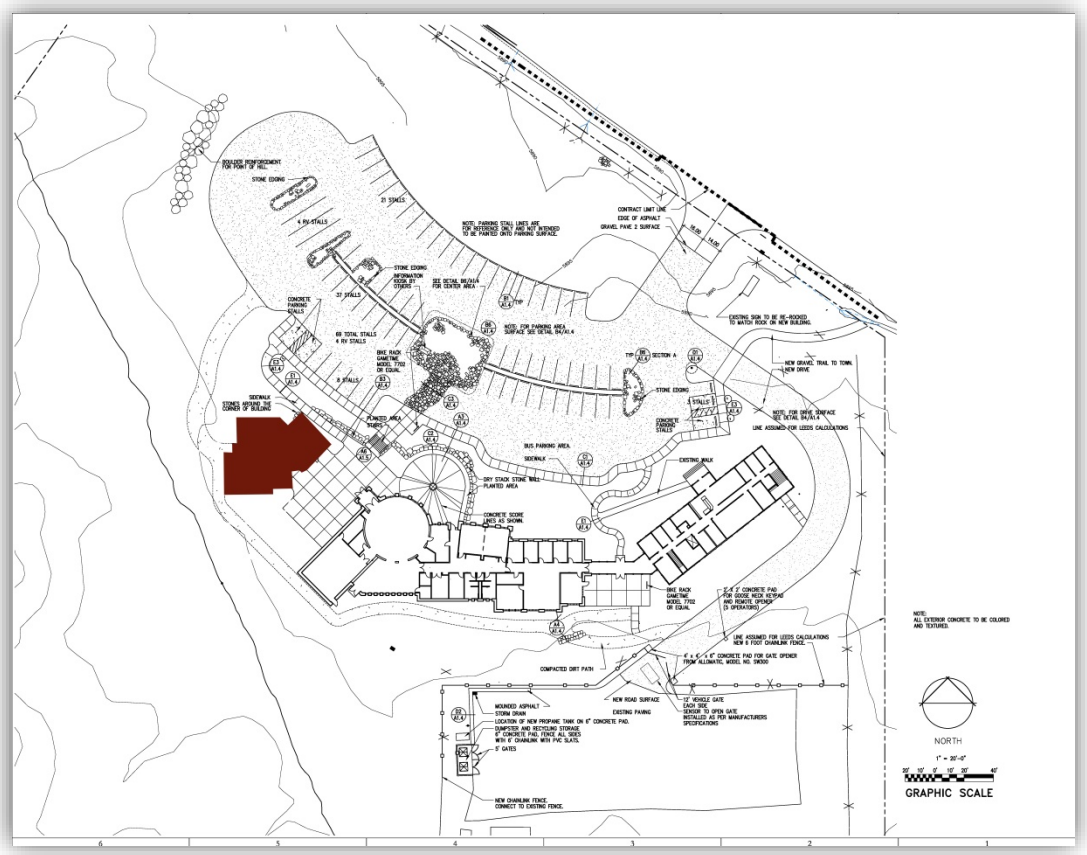
The site also will require appropriate visitor spaces and services, ranging from restrooms and closets to the gift shop and perhaps modest food and beverage services. There are several organizations that provide visitor services in the region that can be contracted to do the same in Escalante. These may include the Glen Canyon Natural History Association, the Bryce Canyon Natural History Association or others that may be developed. In addition to running the gift

shop, these could offer both staffing and programming as well as mechanisms for raising funds independent of both the County and the BLM.

Building Requirements

If the center is located at the Escalante Visitor Center, the current facilities are to be considered. The site plan as well as the aerial view show the small separate building at the west end of the complex. This area was originally intended to serve as a dedicated research area but has been under-utilized. It may serve as the initial space for the natural science center, but there will have to be significant expansions/additions to house all of the anticipated essential functions of the center.

As will be discussed further in this study, it is proposed to use the large entry space and adjacent rooms as the primary exhibit space, this allowing the West building to house more collections activities and functions. It will be necessary to work with the BLM regarding most effective use of the building that, in addition to exhibits, could include program areas, prep labs, food service, etc. Another consideration would be the ability to charge admission to the natural science center while the visitor center itself is open admission.



Site map of the Escalante Interagency Visitor Center. The small west end building is highlighted.

A single building that houses all of the programs and activities that are desirable will be complex and may be simplified by several smaller facilities focused on individual aspects of the program. The public display area will require full public access that meets ADA requirements as well as environmental controls appropriate to the specimens on display. At a minimum it will include: entry area with admissions desk, visitor information, and ready access to a coatroom, restrooms and the gift shop. There may be a theater with appropriate seating, projection equipment, sound equipment, and possibly a performance stage. The ceiling height must be adequate for the possible display of mounted dinosaur skeletons.

The fossil (and other) preparation area will be located adjacent to the exhibit area so that it is readily accessible to public visitors. (This makes its location in the west building very problematic if the main public areas are in the primary entrance area.) It requires a movable glass window that is low enough for children to watch and/or work on the preparation tables and must be illuminated well enough for the actual work to be visible. The lab itself requires effective dust removal systems and temporary storage areas for specimens in preparation and awaiting treatment.

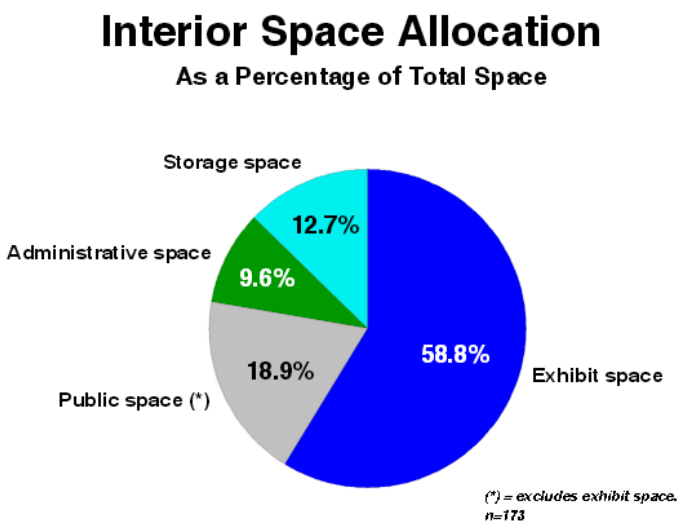
The third area under consideration is the permanent storage facility which will hold local, BLM-owned and other specimens under long-term loan to the natural science center. These must conform to the national requirements. Dr. Greg McDonald, BLM Regional Paleontologist in the Utah State Office in Salt Lake City or his designee will work with the center on the requirements for specimen storage. When the requirements are met, his office can issue the repository permits for permanent and temporary collections. Dr. McDonald suggests that the center study the St. George Dinosaur Discovery Center as an excellent (and nearby) model for how to move through this process and install the appropriate shelving, cupboards, access, etc. Further, the BLM must approve the exhibit facility that will present original specimens. The approved repository for paleontological specimens is specified in the Paleontological Resources Preservation regulation of 2017 (Public Law 111-11, Title VI, Subtitle D). There is a parallel system for archeological collections; the state archeologist/cultural preservation officer Nathan Thomas and Diana Barg, who manages the BLM's Utah collections, are in the same office as Dr. McDonald. State and local governments may also have additional permitting requirements.

Construction/Capital Costs

Determination of approximate capital costs will depend on the final size and detail of the science center. The approximately 1100 square feet of the current Visitor Center west building will require modification and perhaps some structural and/or environmental adjustments, depending on how the various functions of the center are distributed. At this point in the development process costs are very broad estimates based on industry standards. The Department of the Interior maintains its estimates of museum interior costs: (https://edit.doi.gov/sites/doi.gov/files/migrated/museum/policy/upload/DOI-Museum-Cost-Estimates-2013.pdf). Square foot cost estimates for the actual exhibitions are available from the

Association of Science and Technology Centers, consultant Museum Planner as well as some specifics obtained from the Denver Museum of Nature and Science. The exhibits likely will be relatively static and specimen-based with a modest amount of interactivity with an estimated cost of $250-$300 per square foot.

While the center is not a typical museum, it is useful to be aware of how the spaces and functions are allocated in a typical public display facility. This will apply to the first unit of the center, while the preparation laboratory and permanent specimen storage will be additional spaces and functions.



Spaces allocations per American Alliance of Museums

With full awareness that the space allocations and size of any new construction has not yet been determined, rough estimates can be developed for construction costs. No effort has been made to adjust for local construction trends. Assuming a phased development, the first facility will be the existing west block. This calculation assumes renovation of the existing approximately 1,200 square feet plus restrooms, including the cost of exhibit design and installation at @$500 per square foot for a total of $600,000. The preparation laboratory and research facility is estimated to be 1,500 square feet at a construction cost of @$400 per square foot and equipment at @$200 per square foot for a total of $900,000. The permanent storage facility is estimated to be 1,000 square feet at a construction cost of @$400 per square foot and appropriate cabinetry and conditions at @$400 per square foot (based on new installation at the Denver Museum of Nature & Science) comes to $800,000. Thus the basic construction and equipping costs are in the order of $2,300,000. These three units may be developed and opened sequentially or simultaneously, depending on decisions to be made in the future. Also, this does not include any modification of the outdoor area to provide for a visitor trail and/or Field Station. In addition, the number of parking spaces needs to be increased and the width of the turn at the end of the parking lot expanded so busses can perform easily.

Operations

There will be staff for both building and program functions. As described above, the expectation is that BLM staff will cover most building functions. Natural science center staff or visitor center staff will provide support for the daily visitor experiences as well as the preparation/research laboratory and collections functions that are not handled by researchers.

Paleontologist(s), lab technician(s), educator(s), exhibition specialist and general manager will be determined through Cooperative Agreement among the managing parties. Appropriate collecting, curating and management permits and credentials will be required. It is not possible to project the staff size and composition until a decision is made regarding the sequence and timing of center development and opening.

It is anticipated that the natural science center will be accessible to the public the same hours as the visitor center which is open all year long. The summer hours of operation are generally 7:30 am to 5:30 pm, 7 days a week from March to October. Winter hours are 8:00 am to 4:30 pm, 7 days a week from October to Thanksgiving. From late November to March the visitor center is open Monday through Friday from 8:00 am to 4:30 pm.

It is not clear whether there will be a dedicated gift shop for the natural science center or the existing gift shop in the Escalante Interagency Visitor Center will serve the science center. If a separate gift shop is constructed, operation by a contractor is desirable.

There will be opportunities for volunteers, both in the public exhibit/program spaces and in the preparation laboratory. Good models are in place at the other BLM sites that may inform decision makers.

Both Southern Utah University and Dixie State College have expressed keen interest in intern opportunities for their students. They see the natural science center as an excellent opportunity for students to be employed while learning/researching.

Student/summer interns and seasonal employees from out of the area will require housing. BLM may pay some per diem, but currently the agency doesn’t provide housing in Kanab. Presumably Escalante will be the same.

Visitors

Given the very modest population of Garfield County and Escalante, it is certain that the large majority of the visitors will be tourists on Highway 12. As discussed earlier, the traffic between Bryce Canyon and Capital Reef National Monuments is seasonally substantial and increasing year to year. Analysis of the current visitation to the Escalante Visitor Center of over 80,000 suggests that there are already substantial numbers of people literally at the front door of what will be the natural science center.

Currently the four BLM visitor centers are all open admission, while others in the region charge modest fees. Interagency discussions regarding potential admission fees and values for scientific and educational intensive activities will be required as part of the MOU process.

Admissions prices and donations policies

BLM visitor/interpretive centers at Kanab, Big Water, Cannonville and Escalante do not charge admission and, operated by the BLM, do not have a membership or donation program.

The Anasazi State Park Museum admission charges $5 for day use regular, $3 for Utah seniors, and families $10.

The Petrified Forest State Park admission charges: $8 for day use regular, $4 for Utah seniors.

Membership in Friends of the Utah State Parks is Student: $5; Individual: $15: Couple: $25. Annual Day Pass: $75; Senior Day Pass: $35. A membership includes two one-day passes.

The Southern Utah University Natural History Museum is free admission; donations of money or specimens are processed through the University.

The St. George Dinosaur Site at Johnson Farm charges adult admission of $6; ages 4 through 11 are $3. Donations are accepted and memberships start at $20.

The Escalante Heritage Center has free admission and welcomes donations.

The Canyon Country Discovery Center has adult admission of $6, seniors and military at $5, age 12 and under at $4, and families up to ten members at $25. There is a $2 discount for residents of San Juan, Grand, Dolores and Montezuma counties with families at $12. Annual memberships start at $150. The donor list is available on the website.

Assuming that the natural science center will attract one third of the current visitors plus an additional focused audience of approximately the same number will give an annual attendance of about 50,000. Further, if that attendance in 2/3 adults at $6.00 and 1/3 youth at $4.00, there will be admissions revenue of @$250,000.

Funding Options and Opportunities

Listed below is a broad examination of funding options developed in order to determine the viability of the planned operations. Notwithstanding the rudimentary nature of these preliminary estimates, it is clear that there must be multiple sources on both the capital and operating sides.

Construction/Capital Funding

Based on the calculations above, there is need for an initial $600,000 investment followed by $1,700,000 additional funding for full development. Funding sources may include a mix of

government allocations, grants and/or loans, foundation grants, private support and revenue from programs. At this time, it is unknown if any capital funding can come from the BLM, even though the intention is that BLM will own and operate the buildings..

Operational Funding

It is anticipated that expenses related to normal operations of the exhibit area will be included in ongoing BLM building maintenance and operations, with expenses beyond basic operations coming from other sources.

Earned Revenues

Earned revenues may be in several categories. The most obvious is admissions, as discussed above. This study anticipates a potential admissions revenue of @$250,000.

If it is possible for the natural science center to have its independent gift shop, likely operated by a contractor, there will be a modest revenue source here. Given the size of the suggested visitor area and the need to be noncompetitive with the visitor center gift shop, the net profit is likely to be a few thousand dollars.

With the appropriate education staff and connections to organize tour groups and regional schools as well as the practicing scientists it will be possible for the center to offer fee-based special programs. These can range from curriculum-based sessions for schools to field collecting excursions with the scientists. Organized bus tours can make timed stops at the center as part of their schedules and receive special attention at that time.

Contributed Revenue

Foundations

There is a useful listing of Utah private foundations compiled by the Grantsmanship Center (https://www.tgci.com/funding-sources/UT/top). Those that are most prominent are the George S. Eccles and Delores Dore Eccles Foundation and the Jon and Karen Huntsman Foundation. There also are others that are not based in Utah but have histories of support of educational and environmental projects in the state. These include the Bill and Melinda Gates Foundation, the Walmart Foundation and others. A source of information on additional foundation sources is the annual reports of the various 501.c.3 organizations that focus on the natural science and related topics in southern Utah. For example, the Canyon Country Discovery Center lists its donors on its website.

Government Agencies

This study's research suggests that it is unlikely that there will be direct funding from the State of Utah Division of Arts and Museums, although the Division was mentioned positively several times as a means to connect to applicable State programs. The US Department of Agriculture

Rural Development program invests regularly in Utah development initiatives. This facility should easily qualify. There are ways for research grants funded by the National Science Foundation and the National Endowment for the Humanities (the most likely entities) to include components devoted to facility enhancement, equipment purchase, and staffing devoted to the project.

Other

Funding for local tourism-related events and programs come from a variety of sources. As an example, a listing of contributors to the Escalante Canyons Art Festival is available at http://escalantecanyonsartfestival.org. The Eccles Foundation is one of the top-level sponsors for that event

Conclusions and Next Steps

The conclusion of this study is that the idea of the natural science center is solid, and the resources are available to make it happen. The area of most concern and uncertainty is the economics of the project. As the project evolves and as its contributions to natural science research become apparent, funding should become more regular and predictable. The issue is the start-up costs. By initially focusing on exhibits at an existing facility with high exposure and low overhead, and by phasing development, the early year costs can be kept at a level that is manageable until the project gathers the momentum needed to attract expansion funding. A partnership is essential to long-term success, as this provides the range of expertise and organizational contacts needed to navigate through the institutional development process.

The scientific basis for the natural science center is very strong. The paleontological and archeological resources are truly remarkable, so the proposed center has the opportunity to bring new and sometimes quite unexpected studies and objects/specimens to a reasonably broad public. It builds upon the focused presentations at BLM visitor centers as well as several small but focused paleontological museums in southern Utah. Overall, these presentations are complimentary and, with coordinated publicity and marketing, can attract very substantial audiences and bring economic resources to the area. This is seen to some extent by the increased traffic on highway 12 between the national parks; and the Escalante natural science center will be a logical stopping point for those travelers. Thus there is an economic benefit as well as an educational one.

As the project proceeds, the various partners will bring their resources and expectations to the table, and it will be necessary to develop formal relationships and understandings of the roles of and benefits to each. Cooperation is essential to the success of the project. Appropriately constituted advisory and support groups will facilitate these relationships as well as extend the understanding of the project well beyond Escalante and Garfield County.

Integration of the exhibit facility with the Escalante Interagency Visitor Center, and with the Monument's ongoing paleontology program, combined with partnerships with established research and academic institutions, will help to ensure scientific standards are maintained. . It is absolutely essential that the center be built to required collection storage and preservation standards such that it can properly house the research projects and their specimens and objects.

Funding is the major challenge. With that as a caveat, this report sees a positive future for the project and recommends that it proceed.

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Addendum

FACT SHEET ON THE PROPOSED ESCALANTE, UTAH MUSEUM/SCIENCE CENTER

June 19, 2018

Internal scoping document prepared by Drew Parkin, drew_parkin@msn.com, (435) 491-2150

Garfield County's Overall Economic Development Mission

- Establish and maintain a stable economy that benefits residents now and into the future.
- Support flourishing and sustainable communities and enhance quality of life factors, including rural character, housing, education, healthcare, community amenities, environmental quality and living wage jobs.

Museum/Science Center Proposal

- In Escalante, establish a facility that will provide displays and interpretation of the region's most significant natural and cultural history resources. The extent to which this would include curation is to be determined.
- Associated with this public attraction, establish a scientific research center that will attract and sustain academic research related to natural history topics. Ideally this will be through a partnership with one or more academic institutions.

Museum/Science Center Objectives

- Enhance and stabilize the region's tourism economy by attracting a diverse range of new visitors and extending the stay of existing visitors.
- Further the awareness and appreciation among visitors of the region's natural and cultural history.
- Instill a sense of pride in the community regarding the area's natural and cultural history.
- Enhance the non-tourist economy through attracting researchers and students to the community.
- Provide career-enhancing educational opportunities for local residents.

Museum/Science Center Subject Matter Scope

The project will focus on natural and cultural features and events that distinguish the local area and region from other geographic areas and are attractive for scientific research. These features and events include:

<u>Natural History</u>

- <u>Late cretaceous period paleontological resources</u>, both zoological and botanical. These are primarily associated with the Kapairowits Plateau. The Kaiparowits Plateau is widely

considered to the one of the most significant – and perhaps the most significant - repository of paleontological resources from that time period.

- Geological formations that, along with the Grand Canyon to the south, represent the longest visible record of the earth's geological history and that are distinctive in their forms and shapes,
- Biological richness and diversity associated with the region's diverse terrains, elevations and habitat types.

Cultural History

- Archaeological evidence of prehistoric people, specifically the Anasazi and Fremont cultures.
- Western U.S. pioneer and development history, including early Mormon communities and, especially, the Hole-in-the-Rock (HITR) Expedition, the western expansion movement's last and most incredible wagon train trek.

Building Blocks for Moving Forward

Natural History

- There is a well-established paleontology program at the Grand Staircase-Escalante National Monument (GSENM), existing laboratory facility in Kanab, GSENM visitor center in Big Water that focuses on paleontology.
- Long-term use of the Kaiparowits Plateau for paleontological investigation by over 20 universities.
- Numerous paleontology displays featuring specimens from the Kaiparowits Plateau at museums including the Natural History Museum of Utah.
- Expressed interest in the project proposal by the Natural History Museum of Utah, including a willingness to participate in project development.
- Expressed interest in the proposed by the Utah Department of Heritage and Arts' Division of Museums and Arts, including a willingness to provide technical support.
- Several retired academic paleontologists living in the Escalante area.
- Escalante Interagency Visitor Center with under-utilized display area and a small under-utilized science center facility.
- 40-piece fine art prize-winner collection from 10 years of the Escalante Art Festival, all depicting local landscapes or natural features.

Cultural History

- Escalante has been designated as a National Historic District.
- Existing Hole-in-the-Rock Visitor Center with owned and operated by the Escalante Heritage Center, an NGO focusing on Escalante area pioneer heritage. The property has 1+ acre developed and 9 acres undeveloped. Adjacent State, BLM and LDS Church lands are all potentially available for acquisition. The NGO has expressed interest in participating.

- Architectural drawings have been prepared by the NGO for a HITR cultural history museum.
- In 2014 the Utah State Legislature designated Hole-in-the-Rock State Historic Trail (Parowan to Bluff).
- In 2017 the Utah State Legislature designated Hole-in-the-Rock State Park.
- The Utah Department of State Parks has expressed a willingness to participate in project planning and management. State Parks is also interested in expanding the scope to broader recreation opportunities.
- One possibility would be to convert the existing HITR Visitor Center into the HITR State Park Headquarters.
- The Sons of the Utah Pioneers (a LDS Church-related NGO) has marked the HITR Trail from Escalante to the HITR Site on Lake Powell and is interested in contributing.
- The Glen Canyon National Recreation Area (National Park Service) has conducted a heritage area analysis of the HITR Trail area, has expressed a willingness to apply a Traditional Cultural Property (TCP) designation to the portion of the HITR within NRA lands and is willing to consider a cooperative HITR federal/state park. The LDS Church has expressed interest in the TCP designation.
- Portions of the HITR Trail were removed from the Grand Staircase-Escalante and Bears Ears national monuments via the 2017 Presidential Proclamation, potentially making BLM cooperation in management more feasible.
- Garfield County and the State of Utah are both cooperating agencies in the development of a new federal land management plan for the BLM lands between Escalante and the HITR Site.
- Garfield County maintains and has 2477 authority over the HITR Road. The County has conducted the engineering analysis necessary for improvement of the HITR Road.
- There is an existing Anasazi State Park in Boulder, 26 miles from Escalante.

Questions Regarding the Museum/Science Center Proposal

1. Should the museum proposal combine natural and cultural history into the same facility? Is the operative term natural history or paleontology?

2. Should the proposal be for a museum or simply a display facility? If a museum, should this include curation?

3. Is it wise to include both a museum and a science center in the same initiative?

4. Is a scaled-down visitor display of paleontology specimens in the Escalante Visitors' Center worth considering, either as an interim or permanent proposal?

5. Is a revolving paleontology display in cooperation with an existing museum or academic institution a realistic option (as opposed to locally owned specimens) worth considering?

6. Should this proposal be implemented as a partnership with one museum or academic institution? How about a multiple partner arrangement?

7. Should the science center focus on one or multiple academic partners? What about a one partner science center that was essentially a field station for that institution? Would a science center owned by local entity and leased out for a semester or a year to a range of academic institutions be a reasonable approach?