

Proposal Title: Indicators for the Ecological, Physical, and Social Capacity of Recreational Use of Big and Little Cottonwood Canyons

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Contractor Summary

About the Institute of Outdoor Recreation and Tourism at Utah State University

The Institute of Outdoor Recreation and Tourism at Utah State University was founded in 1998 by the Utah State Legislature through the Recreation and Tourism Research and Extension Program Act (S.B. 35). The Institute is mandated to focus on:

- 1) tourism and outdoor recreation use;
- 2) the social and economic tradeoffs of tourism and outdoor recreation for local communities; and
- 3) the relationship between outdoor recreation and tourism and public land management practices and policies.



The purpose of the Institute is to provide better data for the Legislature as well as municipal, county, state, and federal agencies in their decision-making processes on issues relating to tourism and outdoor recreation. Through our research, we provide a base of information and expertise to assist community officials as they attempt to balance the economic, social, and environmental tradeoffs in tourism development. We also cultivate an interdisciplinary approach towards the study and management of outdoor recreation and tourism through undergraduate and graduate degrees in Recreation Resource Management, which we offer through the Department of Environment and Society at Utah State University.

Experience in dealing with similar projects

The Institute has a long history of conducting research focused on solving pressing visitor use management challenges throughout the Wasatch Front. For nearly 15 years, we have worked collaboratively with federal and state management agencies, local elected leaders, transportation officials, user groups, and resorts to develop and implement research projects focused on visitor use management. Our work has been focused on developing a better understanding of: 1) how many visitors are recreating in the Central Wasatch; 2) who those visitors are (i.e., their sociodemographic characteristics, activity preferences, etc.); 3) the temporal and spatial distributions of outdoor recreation activity; and 4) users' attitudes towards both use levels and transportation issues. Our past work in the region has spanned four projects, each of which can be leveraged to help ensure the success of our proposed work.

Central Wasatch Visitor Use Study

In June 2014, the Institute started collecting visitor use data throughout the Central Wasatch Mountains to help inform the Mountain Accord. The initial planning of this study was done collaboratively, with detailed input from non-profit organizations, private businesses, federal and state agencies, local governments, citizens, etc. What resulted was a multi-faceted survey effort aimed to provide the most robust and detailed data about the behaviors and attitudes of Central Wasatch Mountain visitors to date. This 12-month study collected data from a diverse spectrum of settings throughout the Central Wasatch, ranging from low-use trailheads to high-use ski resorts. In total, we collected 4,039 on-site surveys and 1,013 online follow-up surveys. The results from this effort were shared with our partners through meetings, five unique [reports](#), and a series of presentations held for diverse audiences ranging from the Mountain Accord advisory board to citizens at the Salt Lake City Public Library. This project remains the most robust assessment of Central Wasatch visitors to date. The connections we established throughout this effort will be invaluable for generating input for establishing indicators of ecological, physical, and social capacity for both Big and Little Cottonwood Canyon.

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Tri-Canyon Visitor Use Study

We built off of the work completed through the 2014-2015 *Central Wasatch Visitor Use Study* in late 2015 through the *Tri-Canyon Visitor Use Study*. This effort was designed to generate an estimation of annual visitor use in Little and Big Cottonwood Canyons as well as Millcreek Canyon. The study utilized vehicle traffic count data, the average number of people per vehicle from the *Central Wasatch Visitor Use Study*, and ski area visitation numbers.

National Visitor Use Monitoring for the USDA Forest Service

The Institute currently manages visitor use monitoring efforts for eight national forests across 17 million acres throughout the Intermountain West. These projects involve sampling visitors to national forests year-round following protocols and guidelines established by the USDA Forest Service. We have been conducting the visitor use monitoring effort for the Uinta-Wasatch-Cache National Forest since 2007 and over that time have developed a strong working relationship with the agency's staff. Just as importantly, our project managers and field crews have an acute understanding of the social and physical settings throughout both Big and Little Cottonwood Canyons. This local, on-site, experience and knowledge will be invaluable for establishing unique indicators of the ecological, physical, and social capacity of distinct types of recreational settings throughout the two canyons.

Pleasant Grove Ranger District Visitor Use Study

We led a visitor use study of the Pleasant Grove Ranger District throughout 2015-2016 using a combination of both on site and online surveys. The on-site survey was designed to develop a better understanding of visitation (trip frequency, activity preferences, etc.), visitor behavior (use of discrete settings throughout the Ranger District), and visitors' attitudes and perceptions of potential infrastructure improvement projects that could be developed to alleviate on-site crowding and stressed physical infrastructure (restroom facilities, parking lots, etc.). Our familiarity with developing a study focused largely on capacity and transportation challenges will be instrumental in our proposed work of interviewing and working with diverse stakeholders to prioritize indicators for Phase 2 of the project.

Capabilities and Methodology

Vision

Big and Little Cottonwood Canyons provide unparalleled outdoor recreation opportunities to the residents of Salt Lake Valley and the state of Utah, as well as millions of visitors who travel to the state to spend time in the Central Wasatch. Unfortunately, the past decade has seen increases in outdoor recreation use so substantial that they may threaten the ecological integrity of the canyons, the built and recreational infrastructure within them, and the quality of experiences that visitors have come to expect and enjoy. Establishing indicators of the ecological, physical, and social capacity of the canyons is an essential first step to quantifying and monitoring change. Our goal through this proposed work is to establish a set of indicators that are collaboratively generated and grounded in the best-available science and reflect the unique needs and concerns of the diverse stakeholders and interest groups who use, manage, and depend on the canyons. Through the proposed work detailed below, the Central Wasatch Commission, the State of Utah, and the Uinta-Wasatch-Cache National Forest will gain a clear understanding of what data are essential, and what data could be valuable, to ensure strategic investments in physical infrastructure within the canyons. Our process of identifying ecological, physical, and social indicators of capacity is rooted in the best-available science and also meets the needs of the canyons' diverse stakeholders. Our collaborative approach is designed to minimize contestation and pave the way for widely supported management decisions and investments in infrastructure.

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Our vision for this project is to establish scientifically grounded and collaboratively informed indicators of the ecological, physical, and social capacity for distinct types of recreation settings within Big and Little Cottonwood Canyon.

Proposed scope of work

Our proposed scope of work is organized around three questions tailored to meet the contractor requirements outlined in Section 2.03 of the Request for Proposals. These questions are:

- **Question 1:** What key indicators do we need to pay attention to and what data about recreation use in the canyons currently exists?
- **Question 2:** What are the most appropriate ecological, physical, and social indicators for distinct types of recreation settings within the canyons?
- **Question 3:** What indicators should be prioritized in Phase 2 of the project to most effectively guide management decisions and investments in outdoor recreation infrastructure throughout the canyons?

Answering these questions can guide the development of a more purposeful and targeted primary data collection effort, which we envision to be a large part of the Phase 2 of the Visitor Use Study. The specific methods used to address each of these questions is summarized in Table 1.

Table 1. Questions guiding the proposed work and their respective tasks, summary of methods to be used, and timeline for completion of individual tasks.

Questions and Tasks	Methods	Timeline
Question 1: What key indicators do we need to pay attention to and what data about recreation use in the canyons currently exists?		
1.1 Knowledge gap analysis of current recreation research and monitoring in the Uinta-Wasatch-Cache National Forest as well as initial identification of key indicators	Literature review; Interviews with key stakeholders	Mar. 1 – Apr. 30
1.2 Data synthesis (2000-2019)	Data compilation, review, reporting	May 1 – 31
1.3 Legislation and policy review	Compilation, review, reporting; Interactive webinar reporting on Question 1	June 1 – 7 June 15 – 30
Question 2: What are the most appropriate ecological, physical, and social indicators for distinct types of recreation settings within the canyons?		
2.1 Scoping and assessment of existing information on ecological, social, and physical capacity	Data compilation, review, reporting	June 1 – 30
2.2 Assess sociodemographic and geographic trends in use	Data compilation, review, reporting	July 1 – 31
Question 3: What indicators should be prioritized in Phase 2 of the project to most effectively guide management decisions and investments in outdoor recreation infrastructure throughout the canyons?		
3.1 Assessment of stakeholder-informed project plan for missing data needs	Interactive workshops reporting on Question 2 and collecting input to answer Question 3	August 1 – Sept. 31
3.2 Public consultation to build and understanding of, and support for, the project	Educational video paired with online survey	October 1 – 31

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Question 1: What key indicators do we need to pay attention to and what data about recreation use in the canyons currently exists?

Task 1.1 – Knowledge gap analysis of current recreation research and monitoring in the Uinta-Wasatch-Cache National Forest and stakeholder perspectives on key indicators

We will conduct a systematic review of both peer-reviewed and grey literature to establish a comprehensive understanding about what is known about outdoor recreation use and recreation-related impacts within Big and Little Cottonwood Canyons. Our research team has published several peer-reviewed papers on outdoor recreation use within the two canyons and has a firm grasp on the scientific body of knowledge related to their recreational use (1–3). We will also review grey literature (i.e., technical and agency reports from federal and state agencies as well as non-profit organizations) to develop a comprehensive understanding of data concerning recreational use, and recreation-related impacts, within the canyons. Our team has a well-established track record of conducting systematic literature reviews that synthesize disparate and interdisciplinary bodies of knowledge. Our most recent systematic reviews have examined the use of social media to quantify visitation to parks and other public lands (4) and the impacts of outdoor recreation on wildlife across the U.S. (5).

Monitoring efforts and datasets on recreation use and recreation-related impacts within Big and Little Cottonwood Canyons may not be published in either peer-reviewed or grey literature. To account for this, our knowledge gap analysis will be supplemented with interviews of key stakeholders representing agencies, organizations, and user groups who have an interest in recreation use and recreation-related impacts throughout the canyons. Key stakeholders will be identified by our project team in consultation with the Central Wasatch Commission to ensure the appropriate agencies, organizations, and user groups are involved. The key stakeholder interviews will be used to: 1) identify ongoing data collection or monitoring efforts that the agencies, organizations, and user groups are conducting, or are aware of; 2) develop an understanding of the types of indicators those agencies, organizations, and user groups feel are most important, whether or not data on these indicators currently exists; and 3) build an awareness of, and interest in, the visitor use monitoring study. This initial stakeholder input is intended to ensure the project is collaborative and transparent. We will be building on what we learn from the interviews in subsequent collaborative workshops where priority indicators are developed (see Task 3.1).

Deliverables: The systematic literature review and interviews will be conducted in March and April of 2021 and reported on in the project's first technical report provided to the Central Wasatch Commission in mid-June 2021. The findings will also be shared through an interactive webinar hosted by the Institute in late June 2021.

Task 1.2 – Data synthesis (2000-2019)

We will catalog all the data collection and monitoring efforts identified through Task 1.1. If those data are publicly available and the agency, group, or organization that compiled them is amenable to the data being shared, we will compile and store them in a central repository at Utah State University. The data will also be made publicly available through the Institute's website; embedded links will be created so data can be easily shared through the Central Wasatch Commission's website if desired.

The cataloguing, compilation, and sharing of data will be accompanied by a synthesis report that documents data collection and monitoring efforts, which will include the following for each data set: 1) authoritative agency (i.e., who collected or maintains the data); 2) geographic scope (i.e., does the data pertain to specific sites within either canyon or the entirety of both canyons); 3) temporal resolution (i.e., when were the data collected); and 4) relevance to potential indicators identified in Task 1.1.

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Deliverables: The data compilation, sharing, and synthesis will be conducted through May 2021. The report on the synthesis will be shared in the project's first technical report provided to the Central Wasatch Commission in mid-June 2021. All compiled data will be publicly released at that time as well.

Task 1.3 – Legislation and policy review

To augment information gathered through Task 1.1 and 1.2, we will conduct a comprehensive review of the federal and state legislation as well as federal and state agency policies that address, or specifically guide, the management of ecological, physical, and social conditions within the canyons. The purpose of this review is to identify and document all legal or managerial processes and standards that apply to altering outdoor recreation use within the canyons. Our review will be sufficiently broad to capture decisions that may alter both the allowable uses of the diverse recreational settings within the canyons *and* decisions that may alter the recreational infrastructure (e.g., trails, trailheads, restrooms, etc.) and transportation infrastructure (i.e., roadways, parking lots, gondolas, etc.) within the canyons.

Deliverables: We will be conducting the legislative and policy review through May and sharing our findings in the project's first technical report provided to the Central Wasatch Commission in mid-June 2021.

Question 2: What are the most appropriate ecological, physical, and social indicators for distinct types of recreation settings within the canyons.?

Task 2.1 – Scoping and assessment of existing information on ecological, social, and physical capacity

We will be building on the systematic review described in Task 1.1. with a scoping and assessment of possible ecological, physical, and social indicators for distinct types of recreation settings throughout the canyons. The purpose of this scoping and assessment process is to develop an exhaustive list of all the possible indicators which *could* be used to assess outdoor recreation use and recreation-related impacts throughout the canyons. This scoping and assessment process will draw from established methods and measures used within the field of recreation ecology. The assessment will be led by project team member Dr. Chris Monz, an internationally-recognized expert in monitoring and managing the impacts of outdoor recreation in wildland recreation settings (6).

Our assessment will be organized by distinct types of outdoor recreation settings throughout the canyons. The specific types of sites we will evaluate will include: trailheads, trails, front and backcountry campsites, unique areas of interest (i.e., rock climbing areas, waterbodies, etc.), developed and back country ski areas, and others deemed necessary through our discussions with the Central Wasatch Commission and key stakeholders (see Task 1.1).

Deliverables: The scoping and assessment will be conducted through June and shared with the Central Wasatch Commission in the project's second technical report delivered in early August.

Task 2.2 – Assessment of sociodemographic and geographic trends in use

We will assess and summarize existing information on sociodemographic and geographic trends in use throughout the canyons. This will be done through a focused re-analysis of data collected through the 2014-2015 Central Wasatch Visitor Use Study we conducted to help inform the Mountain Accord (detailed in the Contractor Summary above) and data we collected in 2007, 2012, and 2017 as part of the Uinta-Wasatch-Cache's National Visitor Use Monitoring effort (also detailed in the Contractor Summary above). Our current analyses of these data have already shown interesting trends, such as an increase in the average number of trips per person to the Uinta-Wasatch-Cache National Forest each year. The proportion of visitors to the Uinta-Wasatch-Cache who reported recreating on the forest more than 10 times a year increased from 50.5% in 2012 to 58.4% in 2017 (7).

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In addition to reanalyzing data from the 2014-2015 Central Wasatch Visitor Use Study and the 2007, 2012, and 2017 Uinta-Wasatch-Cache's National Visitor Use Monitoring efforts, we will analyze recent trends in the population and sociodemographic characteristics of Salt Lake County and its municipalities. This analysis will help ensure recreation and transportation planning efforts within the canyons meet the needs and characteristics of the populations who use the canyons most frequently and expand accessibility to those who would like to use them more.

Deliverables: The re-analysis of sociodemographic and geographic trends in use as well as the analysis of trends in the population and sociodemographic characteristics of Salt Lake County and its municipalities will occur through July and shared with the Central Wasatch Commission in the project's second technical report delivered in early August.

Question 3: What indicators should be prioritized in Phase 2 of the project to most effectively guide management decisions and investments in outdoor recreation infrastructure throughout the canyons?

Task 3.1 – Assessment of stakeholder-informed project plan for missing data needs

Our third set of tasks will build on the knowledge gained in answering Questions 1 and 2 to address the question, “what indicators should be prioritized in Phase 2 of the project?” Our aim is to develop indicators that are scientifically grounded and widely supported, so as to ensure that these indicators are useful for management and infrastructure investment decisions and not heavily contested. We will begin answering this question by engaging key stakeholders (including those interviewed or identified during Task 1.1) via a series of interactive workshops.

The first set of workshops will provide an opportunity for the Institute's project team to share what they have learned over the previous 5-months through the tasks outlined. A summary of findings will be shared with stakeholders and the project team will address any clarifying questions the stakeholders may have. The workshops will also be used to get stakeholder input about potential ‘blind spots’ (e.g., missing data collection efforts, monitoring protocols, guiding legislation, management policies, etc.) that need to be included in their respective analyses. If blind spots are identified by stakeholders, we will incorporate any missing information into our analysis and reports.

The second set of workshops will engage stakeholders in collaboratively exploring the usefulness of different kinds of indicators for each type of outdoor recreation setting within the canyons (see Task 2.1 above). The ultimate product generated from these workshops will be a prioritized list of indicators by site type. All three pairs of workshops will be facilitated by project team member Dr. Danya Rumore, who Directs the Environmental Dispute Resolution Center at the University of Utah.

Deliverables: The workshops will be held in August and September. A summary document reporting on the discussions within the workshops, as well as the classification of indicators, will be documented in the project's final report delivered in November 2021.

Task 3.2 – Public consultation to get public feedback on and build an understanding of, and support for, the project

Procedural transparency and public awareness will be essential components of the success of this project and any subsequent planning that may alter either the allowable uses of the recreation settings or recreational and transportation infrastructure within the canyons. Acknowledging this, we will develop a short video detailing the structure and findings of the project. The video will be professionally produced

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and reviewed by the Central Wasatch Commission prior to release. Previous examples of our research highlight videos can be seen on the [Institute's YouTube page](#).

The release of the video will also be paired with an online survey designed to give the general public an opportunity to provide input on the specific indicators they believe should be prioritized in Phase 2 of the project. The purpose of this survey effort is to provide a check on the priority indicators identified through the collaborative workshops outlined in Task 3.1. The broader goal of the survey effort is to provide a mechanism where individuals who are not identified as a 'key stakeholder' by the project team and the Central Wasatch Commission can learn about the project and provide meaningful input regarding indicators for Phase 2. The results of the survey will be analyzed and made public as part of the project's final report.

Deliverables: The video will be produced throughout the project and released in coordination with the public survey in early October. The findings of the survey will be documented in the project's final report delivered in November 2021.

Expected Results

Our vision for this project is to establish scientifically grounded and collaboratively informed indicators of the ecological, physical, and social capacity for distinct types of recreation settings within Big and Little Cottonwood Canyon.

Indicators developed through rigor, transparency, and collaboration

Through a collaborative process involving key stakeholders and the general public our methods are intended to generate indicators that reflect the unique needs and concerns of the diverse stakeholders and interest groups who use, manage, and depend on the canyons. Our collaborative approach is structured to minimize contestation and pave the way for widely supported management decisions and infrastructure investments within the canyons.

Indicators by distinct types of outdoor recreation settings

Our proposed work will yield indicators for distinct types of outdoor recreation settings throughout the canyons. It is important for the process to differentiate between trailheads, trails, campsites, and other types of recreation settings because each has unique ecological, physical, and social indicators of capacity. For example, the 2014-2015 Central Wasatch Visitor Use Monitoring effort showed recreationists visiting developed ski areas within the canyons had significantly higher tolerances for the number people they could see while recreating before it started to negatively impact their experience. Differentiating unique ecological, physical, and social indicators by types of recreation settings allow data collection efforts in Phase 2 of this project to be more surgical. Data will only need to be collected on priority indicators for those types of settings where they are important. Establishing priority indicators by types of recreation setting also facilitates more prescriptive management actions and investments in recreation and transportation infrastructure throughout the canyons.

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Deliverables

Specific deliverables by the tasks outlined above are detailed in Table 2.

Table 2. Project deliverables by task.

Task	Deliverables by Task	Date (2021)
1.1, 1.2, and 1.3	Technical Report 1: Findings from the systematic literature review, interviews, synthesis of existing data, and legislation and policy review	June 15
1.1, 1.2, and 1.3	Interactive webinar reporting on the findings from the systematic literature review and interviews	June 30
2.1 and 2.2	Technical Report 2: Findings from the indicator scoping/assessment and analysis of sociodemographic and geographic trends in use	Aug. 13
3.1	Six workshops (two for each set of ecological, physical, and social indicators) with key stakeholders	Aug. – Sept.
3.2	Video highlighting the project activities and outcomes	October 31
3.1 and 3.2	Final Report: Summary of findings detailed in the project's first two technical reports, detailed findings from the stakeholder workshops, and detailed presentation of indicators of the ecological, physical, and social capacity for distinct types of recreation settings within Big and Little Cottonwood Canyon.	November 15

Executives, Staffing, and Management

We plan to execute on our vision by leveraging an experienced research team with demonstrated capabilities in establishing scientifically grounded indicators of both the environmental impacts of outdoor recreation as well as indicators of the quality of outdoor recreation experiences. Our team also brings proven experience in organizing and facilitating collaborative processes with diverse stakeholder groups. By coupling an unparalleled body of work in the science of monitoring and informing the management of outdoor recreation resources across the West with a deliberative and collaborative process, our team has the capacity to define the most appropriate ecological, physical, and social capacity indicators for Big and Little Cottonwood Canyon. We also bring the skills to develop these indicators in a way that ensures the canyons' diverse constituents have a voice in identifying priority indicators and shaping future management decisions and investments in recreation and transportation infrastructure.

Project team

Jordan W. Smith, Ph.D. – Director, Institute of Outdoor Recreation and Tourism, Utah State University
Dr. Smith leads the [Institute of Outdoor Recreation and Tourism](#), which was created to provide data to the Legislature as well as municipal, county, state, and federal agencies in their decision-making processes on issues relating to tourism and outdoor recreation. Dr. Smith's work uses social media analytics and geospatial technologies to develop an understanding of how outdoor recreation is changing across Utah and the broader American West. Dr. Smith will lead the coordination and execution of all project activities, be the primary point of contact between the project team and the Central Wasatch Commission's project manager, and lead the writing and development of all project reports.

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Anna B. Miller, Ph.D. – *Assistant Director of Research and Operations, Institute of Outdoor Recreation and Tourism, Utah State University*

Having previously worked for the USDA Forest Service, Dr. Miller brings a wealth of knowledge on the agency's policies, practices, and priorities. Dr. Miller is a recreation ecologist by training and has recently completed a systematic review on the impacts of outdoor recreation on wildlife across the U.S. (5). Dr. Miller will lead the proposed literature review (Task 1.1), the legislation and policy review (Task 1.3), and the assessment of sociodemographic and geographic trends in use (Task 2.2).

Chase C. Lamborn – *Assistant Director of Outreach and Education, Institute of Outdoor Recreation and Tourism, Utah State University*

Mr. Lamborn leads the Institute's technical assistance programs, managing visitor use monitoring efforts for eight national forests across 17 million acres throughout the Intermountain West. Mr. Lamborn has an acute understanding of the outdoor recreation within both Big and Little Cottonwood Canyons, having led the 2014-2015 Central Wasatch Visitor Use Study (see Contractor Summary above). Mr. Lamborn will lead the proposed data synthesis (Task 1.2) and assist with other project tasks as necessary.

Chris Monz, Ph.D. – *Professor, Department of Environment and Society, Utah State University*

Dr. Monz is the foremost recreation ecologist in the Western U.S. and works extensively with the National Park Service on visitor use monitoring efforts within Grand Teton and Rocky Mountain National Parks. Dr. Monz is also extensively involved in research on managing recreation impacts in urban proximate settings; he is currently leading an effort to monitor impacts to recreation settings across county lands in Orange County, California. Dr. Monz will lead the proposed indicator scoping and assessment effort (Task 2.1) and consult on other project tasks as necessary.

Danya Rumore, Ph.D. – *Director, Environmental Dispute Resolution Center, University of Utah*

Dr. Rumore has expertise in designing and facilitating collaborative processes to address challenges associated with visitation to parks and protected areas across the Western U.S. Dr. Rumore has facilitated collaborative learning opportunities for numerous communities. Recently, she has catalyzed and facilitated collaborative regional planning efforts in the natural amenity regions around Sandpoint, Idaho, and Zion National Park. Dr. Rumore will lead the proposed interviews with key stakeholders, the six interactive workshops, and the public survey effort. Dr. Rumore will also work with the Utah State University team to ensure the project's engagement with key stakeholders and the public align with other project tasks.

Communication

Our project team will hold bi-weekly project update meetings to coordinate all proposed project activities and ensure they are on schedule. The project team will also organize monthly project update meetings, beginning with a project kick-off meeting the week of March 1, to ensure the Central Wasatch Commission's project manager is aware of the current status of the project and all upcoming tasks.

Equipment

No equipment is requested to complete the proposed work. All work will be conducted at Utah State University and the University of Utah. All services needed to complete the work (e.g., journal access, server space, etc.) will be provided by the project team through our respective institutions.

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Expense Breakdown

Senior Personnel – Total request: \$13,009.70

Funds are requested for 2-weeks of summer salary for PI Smith (\$5,083.58), 2.5 weeks of salary support for Co-PI Miller (\$2,614.25), 2.5 weeks of salary support for Co-PI Lamborn (\$2,614.25), and 1-week of summer salary for Co-PI Monz (\$2,697.63).

Other Personnel – Total request: \$2,378.23

Funds are requested to supplement a graduate student's stipend (\$2,378.23). The graduate student will work with Dr. Monz on the proposed indicator scoping and assessment.

Fringe Benefits – Total request: \$6,043.08

Senior Personnel (\$6,030.00) – Fringe benefits are requested for all senior personnel based upon Utah State University's standard benefits rate for faculty (46.5%).

Other Personnel (\$13.08) – Fringe benefits are requested for stipend supplement supporting the project's funded graduate student. Fringe benefits are calculated at Utah State University's standard benefit rate for students (0.80%).

Contractual – Total request: \$12,500.43

Consultant (\$12,500.43) – Funds are requested to cover Co-I Rumore's salary and staff time from the University of Utah's Environmental Dispute Resolution Center.

Total Direct Costs: \$33,931.43

Indirect Costs: \$3,393.14

Total Amount Requested: \$37,324.58

Licensing and Bonding

Utah State University represents and warrants that it has the necessary qualifications (including all relevant permits and licenses), experience, and expertise to provide the services outlined in this proposal.

Insurance

Utah State University ensures that it is in compliance with all insurance-related requirements (including obligations to obtain and maintain specified insurance coverages, additional insured requirements, etc.) at the time of proposal submission and continuing throughout the proposed scope of work.

References

2014-2015 Central Wasatch Visitor Use Study

Carl Fisher – Executive Director, Save Our Canyons, carl@saveourcanyons.org

2007, 2012, and 2017 Uinta-Wasatch-Cache National Visitor Use Monitoring studies

Dave Whittekiend – Supervisor, Uinta-Wasatch-Cache National Forest, david.whittekiend@usda.gov

Pleasant Grove Ranger District Visitor Use Study

Shawn Seager – Director of Planning, Mountainland Association of Governments, sseager@mountainland.org

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References

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2. C. C. Lamborn, J. W. Smith, S. W. Burr, User fees displace low-income outdoor recreationists. *Landscape and Urban Planning* **167**, 165–176 (2017).
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4. E. J. Wilkins, S. A. Wood, J. W. Smith, Uses and limitations of social media to inform visitor use management in parks and protected areas: A systematic review. *Environmental Management* (2020) <https://doi.org/10.1007/s00267-020-01373-7>.
5. A. B. Miller, *et al.*, “Sustaining wildlife with recreation on public lands: A synthesis of research findings, management practices, and research needs.” (USDA Forest Service, Pacific Northwest Research Station, 2020).
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7. J. W. Smith, A. B. Miller, “The State of Outdoor Recreation in Utah - 2020” (Institute of Outdoor Recreation and Tourism, Utah State University, 2020).