



LONG-RANGE

INTERPRETIVE

PLAN

June 2022

Long-Range Interpretive Plan

Mammoth Cave National Park

Developed by Interior Region 2 (Southeast Region)
Interpretation, Education & Community Partnerships

June 2022

Approved by

Superintendent, Mammoth Cave National Park

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Introduction



Below the rolling foothills of Kentucky lie over 400 miles of twisting, turning karst cavern known as Mammoth Cave. Mammoth Cave National Park is designated as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site and International Biosphere Reserve. The cave system is the longest known in the world and home to an astonishing variety of unique subterranean life and water features including multiple underground rivers. Just as complex, and often just as hidden, are the stories of the people who have explored, exploited, and enjoyed Mammoth Cave and the surface lands sheltering it for thousands of years.

In addition to the park's best-known feature, its subterranean labyrinth, the park protects nearly 53,000 acres of beautiful woodland with access to wildlife viewing, historical exploration, two above ground rivers, and a multitude of recreational opportunities for camping, hiking, biking, canoeing, fishing, foraging and horseback riding. People from all over the world enjoy the park's natural and scenic wonders above ground, and the park has been recognized by the International Dark Skies Association as a Dark Sky Park with a superlative starscape.

This interpretive plan is designed to guide park managers for the next 5-7 years as they endeavor to assist visitors in making their own discoveries and connections with Mammoth Cave and the mysteries it holds.



Executive Summary



Goals and Desired Outcomes

This plan was initiated September 2021 and completed in May 2022. Park Management requested a long-range interpretive plan to guide the expansion and refinement of interpretive operations at Mammoth Cave National Park with specific focus on developing strategy to:

- 1. Improve accessibility for visitors with differing ability levels.
- 2. Make park experiences more inclusive to serve diverse audiences.
- 3. Ensure the park's lasting relevance to next generation audiences with technology.
- 4. Expand opportunities to provide surface interpretation and visitor services.
- 5. Enhance opportunities for volunteer engagement.

These goals are aligned with relevant national, regional, and park-level strategic goals as seen in Figure 1.1.

Figure 1.1 Strategic Goals Alignment Tables

National Strategic Goals Alignment	Strategic Focus Areas				
	1	2	3	4	5
Expand hunting, fishing, and other recreation on DOI lands and waters. (DOI Strategic Plan 2018-2022 Goal 3.1)	✓	✓		✓	
Advance equity, inclusion, and access in carrying out the NPS mission. (NPS Strategic Priorities, 2022)	✓	✓	✓	✓	✓
Enhance public satisfaction at DOI sites. (DOI Strategic Plan 2018-2022 Goal 3.2)	✓	✓	✓	✓	✓
Invest in the future of parks. (NPS Strategic Priorities, 2022)	✓	✓	✓	✓	
Create an NPS experience that meets visitor expectations into the future. (NPS Strategic Priorities, 2022)	✓	✓	✓	✓	✓
Align DOI organizational structure and workforce to improve partnership engagement and mission delivery (DOI Strategic Plan 2018-2022 Goal 6.1)		✓	✓		✓
Connect and empower a thriving and diverse workforce. (NPS Strategic Priorities, 2022)	✓	✓	✓		✓
Foster partnerships to achieve balanced stewardship and use of our public lands (DOI Strategic Plan 2018-2022 Goal 1.3)		✓			✓
Support tribal self-determination, self-governance, and sovereignty (DOI Strategic Plan 2018-2022 Goals 4.1)		✓			
Respect and strengthen Indigenous connections, enhance our nation-to-nation relationships, and fully uphold our trust and treaty responsibilities. (NPS Strategic Priorities, 2022)		✓			
Provide science to safeguard communities from natural hazards (DOI Strategic Plan 2018-2022 Goal 5.4)		✓	✓	✓	
Confront the climate crisis using scientific and traditional ecological knowledge in stewarding our resources. (NPS Strategic Priorities, 2022)		✓	✓	✓	

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Regional Strategic Goals Alignment	Regional Goals				
	1	2	3	4	5
Collaboratively tell inclusive, regionwide stories.	✓	✓	✓	✓	✓
Elevate the quality and relevance of interpretive exhibits.	✓	✓	✓	✓	
Leverage digital platforms for information, interpretation and education access.	✓	✓	✓	✓	
Inspire, engage and hire the next generation of youth leaders.	✓	✓	✓		✓

Park Strategic Goals Alignment	Park Goals				
	1	2	3	4	5
MACA will maintain the capability to deliver visitor and interpretive services of the highest quality. Through these services, MACA will create an environment where visitors not only enjoy the park, but also understand reasons for the park's existence and significances of its resources.	✓	✓	✓	✓	✓
The park must continue creating/providing innovative interpretive and educational programs of exceptional quality to facilitate public understanding of the meaning and relevance of park resources while simultaneously developing stewardship. MACA programs and activities need to forge connections between resources, visitors, communities, and the entire NPS system.	✓	✓	✓	✓	✓
Continue and enhance beneficial park partnerships with various stakeholders and Native American Affiliated Tribes.	✓	✓	✓	✓	✓
Mammoth Cave, being an icon National Park and a World Heritage Site as well as the core of an International Biosphere, requires MACA to manage resources with the highest levels of scientific expertise, which includes facilitating and promoting research and scientific inquiry for long-term resource stewardship. In addition, the science and resource stewardship programs will provide a strong foundation for communicating park interpretive and educational programs both internally and externally.	✓	✓	✓	✓	
Recruit, develop, and retain quality employees and ensure the park's workforce reflects America's diversity.	✓	✓			✓

Fulfillment of the strategic goals addressed in this plan will result in increased visitor satisfaction, more diverse audiences and staff coming to the park, more visitation to surface sites while visitation in the cave remains at or near its current rate, and increased economic benefit to the park's gateway communities.

These benefits can be measured using the metrics identified in Figure 1.2.

Figure 1.2 Measurable Outcomes Table

Measurable Outcomes	Measures of Success				
	1	2	3	4	5
Visitor response and comments reflect a well-balanced and inclusive experience reflecting multiple perspectives.		👍			
Percentage of programs and interpretive content reflecting diverse and inclusive narratives increases, as assessed by content.		👍			
Visitation demographics reflect more diverse visitation.	👍	👍			
Feedback from partner groups and associations reflect higher visitor satisfaction, especially pertaining to use of technology for trip planning.			👍		
Trip counters reflect increased numbers of visitors at surface locations.	👍	👍		👍	
Gateway communities and park statistics reflect an increase in quantity and length of overnight stays.	👍	👍	👍	👍	
Park economic benefit to gateway communities increases.	👍	👍	👍	👍	
Visitor satisfaction increases as assessed by visitor experience surveys as well as comment cards.	👍	👍	👍	👍	
Trip reviews on well-known travel sites as well as Recreation.gov reflect higher visitor satisfaction.	👍	👍	👍	👍	
Repeat visitation is increased.	👍	👍	👍	👍	
Visitor participation in underground exploration and interpretation is sustained.	👍	👍	👍		
Quantity and quality of interpretive services increases as a result of volunteer labor.					👍
Percentage of programs and interpretive content reflecting diverse and inclusive narratives increases, as assessed by content.	👍	👍			

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Measures of Success	1	2	3	4	5
The park establishes and sustains routine consultation with affiliated Native American Tribes on cultural studies, plans, reports, and interpretation (not just issues requiring section 106 and NAGPRA) as measured by number, type, and frequency of consultations as well as Tribal response rates.		👍			
Numbers of research permits and reports increases, especially among scientific groups representing traditionally underserved populations and those with differing ability levels.	👍	👍			👍
Number of partnerships and projects w/ academic institutions and research organizations are enhanced and expanded, especially among scientific groups representing traditionally underserved populations and those with differing ability levels.	👍	👍	👍		👍
The number and type of citizen-science volunteer opportunities and teacher workshops is increased and enhanced.					👍
The number of interns recruited from HBCUs, Greening Youth, and other diverse institutions to engage in scientific discovery, exploration of the park, and introduction to NPS careers increases.		👍			👍
Staff demographics reflect a more diverse workforce that represents national demographics.		👍			👍
The number of hiring announcements and financial contributions to HBCU, Greening Youth, and other organizations specializing in placement of diverse employees increases.	👍	👍			
The percentage of programs and interpretive content reflecting diverse and inclusive narratives increases, as assessed by content.	👍	👍			
The overall number of volunteers in the park increases, as well as the percentage of diverse volunteers, as measured in key demographics pertaining to age, race, veteran status and ability level.	👍	👍			
Retention of diverse employees increases, as measured by staff demographics.	👍	👍			
Financial incentives to attract and retain a broad spectrum of diverse employees increases.	👍	👍			

S.C.O.T. Analysis

Strengths

Mammoth Cave’s interpretive program is overall very strong with many program aspects that are stand-out models for the National Park Service. In particular, the park’s environmental education program, mixed tour employment schedule, and sustainable funding model represent exemplary business practices for interpretation. Mammoth Cave’s education program is one of the largest in the service benefitting approximately 60,000 youth each year with innovative, customizable programming. The park’s mixed tour employment schedule allows the park to leverage a range of permanent, part-time, full-time, subject-to-furlough, and intermittent positions to maximum benefit to cover shoulder season visitor needs and complete project work in winter. The park’s focus on interpretation and as well as the structure of its fee system create a sustainable program that enables these and other examples of interpretive excellence.

Further, an external assessment of existing conditions demonstrated that interpretive storytelling is excellent, as is staff customer service. In fact, analysis of online reviews left by park visitors reveals that second to the cave itself, interpretive guides are the highlight of visitors’ experience.

Challenges

While Mammoth Cave’s interpretive program is overall very strong, some concerns include a relatively low percentage of inclusive stories told through interpretation programs and exhibits (as compared to the very diverse history of the park), a lack of variety in recreational and interpretive opportunities for people with differing ability levels, staff concerns over dedicated training time and opportunities for upward mobility within the park, lighting challenges in the cave, and use of interpretive themes that could be stronger. Park management is aware of these weaknesses and have already taken some steps to improve many of these conditions. Leadership commitment to resolving these issues is further reflected in the park’s stated goals for this interpretive plan, as well as the park-wide strategic plan.



Opportunities

Mammoth Cave enjoys an incredibly large network of stakeholders with over 400 unique groups, people, and entities identified as stakeholders through an ethnographic study. This creates a fantastic opportunity for the park to leverage and enhance its existing relationships to achieve its strategic goals, especially pertaining to leveraging technology, serving youth, and telling more inclusive stories. Of note, the National Park Service (NPS) is conducting the Kentucky Wildlands Study through Denver Service Center which should provide new opportunities pertaining to scholarship of Native American History. Further, the park’s robust education program provides a ready-made system to reach neighboring communities through youth engagement.

The park also enjoys excellent retention of its permanent interpretive and resource staff with many existing members working in the park for 20 or more years. This strength, and its corresponding depth of legacy knowledge, creates excellent opportunities for cross-training and telling fresh stories with information most relevant to audiences of today and tomorrow.

Finally, the park boasts approximately 53,000 acres of gorgeous woodland and ample opportunity for above ground recreation which is used currently by only about 5% of visitors.¹ Opportunities for above-ground interpretation of the park’s fascinating history include the stories of sustainable farming practices of Native Americans, the exploration and development of Kentucky’s natural resources, the importance of railways and waterways in American history, the use of slave labor to support wars for Anglo-American rights, African American contributions (both forced and chosen) to the growth of Kentucky industry, and Kentucky’s role in the American Civil War and subsequent struggle to overcome segregation and realize the American Dream of justice and equality for all.

Threats

The greatest threat to the interpretive program at Mammoth Cave comes from high visitation. Mammoth Cave’s subterranean visitor experiences are currently operating at, or very near, capacity. This makes it extremely difficult for Mammoth Cave’s interpreters to expand surface programming, train on current interpretive techniques, or research and develop under-told stories. High-capacity tours create limited opportunity for personalized engagement with visitors, and it is not uncommon for visitors to arrive at the park only to be disappointed because of a lack of cave tour opportunities. Even though Mammoth Cave’s current subterranean visitation operates at (or very near) capacity, nationwide data tell us that the relevance of parks and other cultural institutions to today’s audiences is declining and to ensure the relevance and viability of these institutions in the future, parks must adapt to reach new audiences.² Additionally, climate change poses multiple threats, not only to the park and its resources, but to the communities and visitors it serves. Communicating these threats, and helping people understand their role in combating man-made climate change, is an elemental facet of good interpretive work in the National Park Service.

¹ Lynne Koonts and Catherine Cullinane Thomas, *2020 National Park Visitor Spending Effects: Economic Contributions to Local Communities, States, and the Nation* (Fort Collins, Colorado: National Park Service, May 21), 37

² Colleen Dilenschneider, “Market Potential by Quarter in 2021: Projected Attendance to US Cultural Entities (DATA),” *know your own bone*, accessed September, 2021, <https://www.colleendilen.com/2021/01/20/market-potential-by-quarter-in-2021-projected-attendance-to-us-cultural-entities-data/>

Summary of Selected Recommendations

The Long-Range Interpretive Plan for Mammoth Cave National Park includes a vast buffet of recommendations which may assist park management in making decisions about interpretive programming for many years to come, however, it would be unrealistic to think the park will accomplish all of these. Therefore, certain recommendations are prioritized and scheduled for implementation, while the complete suite of recommendations can be found in the appendices. The recommendations which will have the greatest impact on helping Mammoth Cave National Park achieve its five stated strategic goals are summarized here.

Improve accessibility for visitors with differing ability levels.

- Prominently feature accessibility information throughout the park to create a more welcoming experience for people with disabilities.
- Pursue new ways to leverage partners and technology to create more accessible experiences.

Make park experiences more inclusive to serve diverse audiences.

- Conduct deliberate content analysis of all interpretive media and programs and set quantifiable guidelines to improve the representation of people of color and women in programs and exhibits.
- Work to improve relationships with affiliated Native American tribes to incorporate indigenous knowledge into park interpretation.
- Partner with organizations catering to people of color to provide recreational and educational opportunities they are interested in, meet potential visitors where they are at.
- Use the park's updated themes and theme matrix to tell more inclusive and complete stories.

Ensure the park's lasting relevance to next generation audiences with technology.

- Repackage existing film library to offer additional experiences using on-site and off-site technology.
- Prioritize web, social media, and virtual reality (VR) tour experiences to attract younger audiences.
- Fix cave lighting issues to create easier navigation and more authentic viewing of cave formations.



Expand opportunities to provide surface interpretation and visitor services.

- Prioritize the availability of hiking information in digital media and on-site publications.
- Incorporate the use of amenity fees to create sustainable surface programming.
- Cater to local audiences to enhance diversity, word-of-mouth community outreach, and repeat visitation.
- Offer large-group, combination, and Dark Sky programs to encourage more overnight stays.

Enhance opportunities for volunteer engagement.

- Work with the new volunteer program manager to leverage existing volunteers to support interpretation and create new opportunities for volunteers to mitigate algae and support a robust Dark Sky program.



Foundations

The Foundations section of this plan is not designed to replicate, substitute, or supplement the park's existing Foundation Document except where it concerns the park's interpretive themes. As such, this section contains excerpts from the Foundation Document intended to help the reader understand the park's interpretive operation in terms of the park's broader context in a single sitting. For in depth information on any of the sections discussed below, the reader must consult the *Foundation Document for Mammoth Cave National Park, June 2014*.

Description of the Park

Named for the enormity of its “mammoth” subterranean vaults and the unparalleled extent of its passages, Mammoth Cave is the longest known cave system in the world with over 400 miles surveyed to date.

Mammoth Cave National Park (the park) comprises approximately 52,830 acres in Edmonson, Hart, and Barren counties in the Commonwealth of Kentucky. Visitors are drawn to the park by its caves, scenic river valleys, bluffs, forests, and abundant wildlife. The park offers ranger-led cave tours and surface walks, camping, hiking, horseback riding, bicycling, scenic drives, canoeing and kayaking, fishing, four accessible trails, and picnicking. This breadth of activities is available because Mammoth Cave National Park is a park on two levels—reclaimed hardwood forest and winding riverways above, and complex cave systems below.

In 1981, the United Nations Educational, Scientific and Cultural Organization (UNESCO) designated Mammoth Cave as a World Heritage Site. In 1990, the Mammoth Cave Area International Biosphere Reserve was designated (with all park acreage included in a core 112,800-acre area) and it was expanded to 909,328 acres in 1996.

Explorers continue to discover the secrets of Mammoth Cave as new passageways and scientific research are conducted each year. Visitors to this national park continue to be drawn to its diversity, its beauty, and its mystery, as they have been since prehistory.³

Park Purpose

The park was established when the enabling legislation adopted by Congress was signed into law on July 1, 1941. The purpose statement lays the foundation for understanding what is most important about the park.

The purpose of **Mammoth Cave National Park** is to preserve, protect, interpret, and study the internationally recognized biological and geologic features and processes associated with the longest known cave system in the world, the park’s diverse forested, karst landscape, the Green and Nolin rivers, and extensive evidence of human history; and to provide and promote public enjoyment, recreation, and understanding.⁴

³ National Park Service, US Department of the Interior, *Foundation Document: Mammoth Cave National Park* (Kentucky, June 2014) 3-5

⁴ Foundation Document, 6

Park Significance

The following significance statements have been identified for Mammoth Cave National Park. (Please note that the sequence of the statements does not reflect the level of significance.)

1. Mammoth Cave National Park is both a UNESCO World Heritage Site and the core of an International Biosphere Reserve, primarily due to its globally significant karst resources. The park protects the world’s longest known cave and more than 400 other caves that contain features that are superlative examples of their types.
2. Mammoth Cave National Park’s range of topography and location at the juncture of the Shawnee Hills /Western Kentucky Coal Fields and Mississippian Plateau (which includes the Dripping Springs Escarpment) regions, dissected by the Green and Nolin rivers, creates an interrelationship of the surface and subsurface ecosystems with exceptional diversity of landforms, habitats, life forms, and functions. Some of the flora and fauna protected in these habitats are endangered and of international significance, including, one of the most studied cave biota in the world.
3. Mammoth Cave National Park contains well-preserved cultural resources, both in the caves and above ground, spanning the last 12,000 years. These include evidence of cave exploration; American Indian early plant domestication; prehistoric and early historic mineral mining; pioneer settlements; sites related to early American wars; and engineering and design related to 200 years of tourism and park development. The remarkable integrity of cultural resources in Mammoth Cave National Park has and continues to inspire exploration, educational outreach, and scientific research.
4. The Green River is the master stream controlling the geologic development of Mammoth Cave and its world-class karst ecosystem. Springs along the Green River provide opportunities to experience the intersection between the surface and subsurface environments. Within the park, the Green River bisects two physiographic regions and supports one of the most biodiverse aquatic communities in North America. The scenic Green and Nolin rivers provide significant opportunities for scientific study and recreation within the forested karst landscape.
5. Mammoth Cave National Park has been an internationally known destination for more than 200 years. The park, located within a day’s drive of half of the U.S. population, offers a wide range of recreational and educational opportunities amidst the diverse cave system, outstanding scenic rivers, hilly country, and abundant wildlife. On ranger-led tours, visitors learn of the connection between the park’s surface and subsurface and hear stories of the people who lived here for thousands of years. Generation after generation of park visitors return time and again to rekindle emotional and personal connections with the rich cultural and natural history of the park.⁵

⁵ Ibid, 7

Fundamental Resources and Values

Fundamental resources and values (FRVs) are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. If fundamental resources and values are allowed to deteriorate, the park purpose and/or significance could be jeopardized. The following fundamental resources and values have been identified for Mammoth Cave National Park:

World-class Karst. Mammoth Cave’s karst landscape is internationally renowned. It showcases the geologic and hydrologic processes linking the surface and subsurface environments. The park contains over 400 known miles of caves.

Scientific Exploration and Discovery. The park is the core of one of the most studied karst areas of the world. More than 5,000 years of exploration has led to present understanding of the complexity of the park’s caves.

Underground Time Capsule. The caves in Mammoth Cave National Park are an exceptional time capsule due to specific environmental conditions and limited disturbance, which have preserved fragile, perishable materials within a distinctive cultural landscape.

Twelve Thousand Years of Human Interaction with the Land. Mammoth Cave National Park preserves cultural resources, objects, and landscapes, above and below ground, that remain important touchstones of cultural identity and heritage.

Water Shapes the Landscape. The cave streams in the park are designated Outstanding National Resource Waters, and the park’s underground drainage basins are designated as Outstanding State Resource Waters, extending outside of the park’s boundary. The Green River is designated as an Outstanding State Resource Water and a state Wild River, providing significant scenic and recreational opportunities. The Green and Nolin rivers support one of the most diverse fish and invertebrate faunas in North America.

Opportunities for Connection to the Resources. The very nature of Mammoth Cave allows visitors to personally interact with interpretive rangers who provide the necessary protection to cave resources and the visitors themselves. Visitors enjoy a wide range of recreational opportunities such as hiking, biking, horseback riding, or floating, canoeing, kayaking, and fishing the rivers.

Biodiversity. Mammoth Cave National Park is home to over 1,300 vascular flora species and more than 130 species of fauna including several threatened and endangered species, some of which are only known to exist in the Mammoth Cave area.

Natural Resource Quality and Function. Mammoth Cave National Park is designated as a World Heritage Site and International Biosphere Reserve because of the outstanding quality of resources.⁶

⁶ Ibid, 8-11

Interpretive Themes

Park Interpretive Themes define the most important ideas or concepts communicated to visitors about a park unit. While infinite themes could be created to help interpret a park’s resources and values, Park Interpretive Themes are derived from, and should reflect, park purpose, significance, resources, and values. They provide the foundation on which all other interpretive themes are built. They are one of the central tenets of professional interpretation as practiced by the National Park Service and other heritage institutions around the world. As such, they are treated in this document for reflection and refinement, not merely for reference. The themes from the 2014 *Foundation Document* are listed in this section, followed by revised themes which have been updated and refreshed to reflect professional standards for interpretation and help the park tell more inclusive stories. The revised themes lay the foundation for future interpretation at Mammoth Cave for the next 5-7 years, or until revised again by subsequent formal planning process. Stories, topics, and essential questions for audience centered dialogue are aligned with the new revised themes in the Theme Matrix found in the Implementation Section of this plan.

Legacy Themes from the Foundation Document, 2014

- The Mammoth Cave landscape shelters an underground labyrinth unmatched in size and complexity; the mysteries of this diverse natural laboratory have inspired human discovery for thousands of years.
- We share with our ancestors an avid curiosity and sense of wonder that guides us to experience adventure and excitement, create works of imagination, and explore the unknown.
- Knowledge from ongoing scientific endeavors in the Mammoth Cave area helps to alleviate threats to the park’s resources, expand understanding of complex natural systems, and enrich the visitor experience.
- For more than 12,000 years people have interacted with the Mammoth Cave landscape using natural resources to ensure their survival and improve their quality of life.
- The ever-changing karst landscape of south-central Kentucky exemplifies the power and persistence of water through time in creating the world’s longest known cave system, Mammoth Cave.
- The diverse flora and fauna of Mammoth Cave National Park, some of international significance and endangered, is faced with external and internal challenges that not only affect visitor use and management of the park, but the very survival of those species.

Revised Themes, 2022

- The uniquely beautiful landscape of Mammoth Cave National Park shelters an underground labyrinth unmatched in size and complexity.
- The diverse mysteries of nature that Mammoth Cave National Park protects continue to inspire scientific discovery and exploration.
- The history of human interaction with the land in and around Mammoth Cave is just as complex, and often just as mysterious, as the cavern itself.
- The karst landscape of Mammoth Cave National Park creates an exceptional opportunity for people to experience the ways water connects the surface, subsurface, and us.
- An incredibly diverse population of plants and animals, some found nowhere else in the world, are fighting for survival at Mammoth Cave National Park.
- Mammoth Cave National Park is committed to the ongoing exploration of the park's history and its importance to the cultural identity of Native Americans who lived on lands in and around the park before being exploited, excluded, and forcibly removed.
- Mammoth Cave National Park tells the extraordinary story of enslaved African Americans and their descendants who discovered many of the cave's most iconic features and whose entrepreneurial spirit shaped the social, political, and physical landscape of America.

Essential Questions

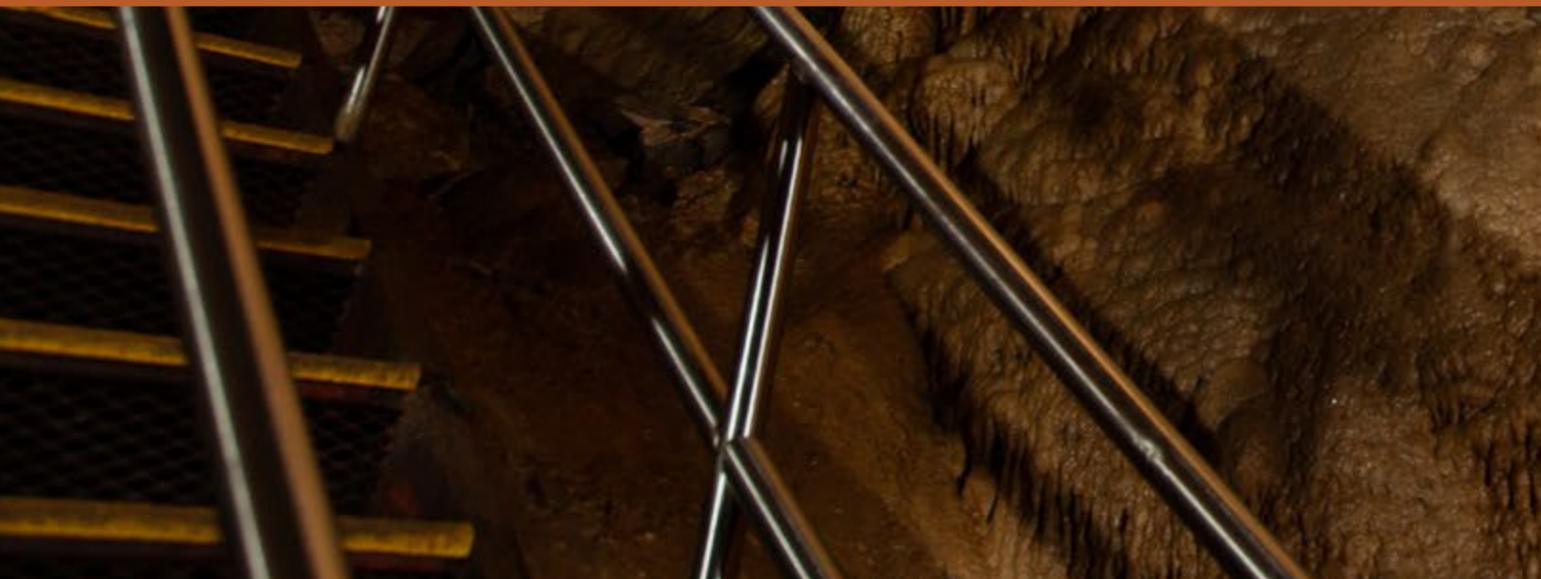
Essential questions are the starting point for interpreters developing audience centered dialogic experiences. They are questions that probe the park's fundamental resources and values and statements of significance in order to encourage shared stewardship and broad collaboration in preserving heritage resources. They elevate a site's relevance to modern audiences by asking visitors to make connections between park resources and real-world dilemmas of broad social importance. In form, essential questions are intriguing questions that cannot easily be answered, but which invite visitors and park staff to ask more questions and explore the answers together while engaging in mutual learning, contributing individual experience, and building 21st century skills. Essential questions are similar to interpretive themes in that they provide a baseline rhythm of communication interpreters build upon as they craft visitor experiences for the park. The essential questions developed for Mammoth Cave are:

Essential Questions

- What have we learned from the history of agriculture and speleology at Mammoth Cave that could help us reduce the impacts of climate change today?
- How do concepts of ownership effect human relationships with the land and each other?
- How does economic privilege shape our society in the leisure and travel industry?
- Why should we care if rare and unusual animal species are extinguished?
- What is the value of water at Mammoth Cave?
- How do we overcome the legacy of systemic racism and institutionalized slavery in America?



Existing Conditions



An assessment of existing conditions pertaining to interpretive operations was conducted from November 8-12, 2021. This snapshot of operations assists park planners in understanding the context for the parks stated goals, creates a baseline for developing recommendations and monitoring metrics for the plan, and provides basic orientation information to incoming management staff wishing to understand the state of interpretation at the time the plan was developed.

Visitor Experience

Interpretive and Recreational Activities

The visitor experience at Mammoth Cave is heavily reliant on the visitor's ability to pre-plan for cave tours as the number of tours offered daily is limited. The capacity limits on cave tours were established by the *Mammoth Cave National Park Cave and Karst Management Plan, 2019* and were developed to protect cave resources while providing high quality visitor experiences for over 500,000 visitors each year.⁷ Because of these limits, visitors who do not pre-purchase tour tickets can, and do, frequently arrive at the park only to be disappointed by not being able to see the cave.

There is an option for a self-guided discovery tour which is limited to 500 people per hour, however, self-guided exploration is not always available. In order to provide an enjoyable experience that is safe for people and the resource, staff must be present in the self-guided area, and this can compete with staffing needs for tours.

While the park offers nearly 53,000 acres of above ground woodlands to explore, 95% of visitors come to see the cave,⁸ and those who miss out on that experience are disappointed. While there are ample opportunities for above ground recreation in the park, interpretation above ground is minimal and there is an unrealized opportunity to contribute to visitor experience and help alleviate cave congestion and overflow. There is a visitor center with an indoor exhibit and park film. Recreational Opportunities above ground include kayaking and canoeing on a 34 mile stretch of the Green River, hiking on over 66 miles of maintained trails (including four accessible trails), horseback riding, camping, mountain biking, fishing, wildlife viewing, exploration of history, and ancestry research and grave finding. Of note, participation in kayaking and canoeing has tripled in recent years.

The park has expressed interest in expanding recreation in the park to include additional hiking opportunities and interpretive tours above ground, another campground on the other side of the Green River from Houchin's Ferry, additional tours and trails in the cave, and more accessible trails and tour opportunities.

Trip Planning

To assist visitors with trip planning, the park assigns two staff each day to answer phone lines, maintains a website, and participates in use of the NPS app. Before speaking to a staff member to ask questions about trip planning, visitors receive a menu of automated options for trip planning featuring pre-recorded messages and an automated connection option to transfer to Recreation.gov for tour information, pricing, and purchasing. The Recreation.gov phonenumber advises visitors to purchase tickets online, however, purchasing is available by phone after listening to several pre-recorded messages and selecting the right option from the automated menu. Recreation.gov staff do not always have updated information about park operations such as temporary closures or

⁷ National Park Service, *Mammoth Cave National Park Cave and Karst Management Plan/Environmental Assessment*, July 2019, 1-4

⁸ *Visitor Service Project*, 40

maintenance issues. The park's website includes a link to booking tours through Recreation.gov, however it is somewhat buried.

Wayfinding

Wayfinding to the park's most frequently visited sites is fairly straight forward during the day as roads to the visitor center are well marked. However, signage is not standardized and is somewhat difficult to see at night in this International Dark Sky Park. This can make wayfinding difficult in the backcountry, and even in the frontcountry during hours of limited visibility. The visitor center employs multiple staff to provide maps, orientation and wayfinding assistance during business hours.

Customer Service

Once visitors arrive at the visitor center, a prominent indoor guest services station is operated by NPS staff who provide maps, trip planning advice and information, and answer visitor questions. In the same entry area, visitors can explore the park's indoor exhibits (which include the park's official film), shop from two different gift shops run by two different park partners, use the bathroom, and purchase tickets for tours. There is an outdoor kiosk with tour descriptions, times and other informative information for day planning. Monitors inside provide updated information on tour availability for cave and surface tours. In summer, lines for tickets can be quite long and can result in frustrated visitors who find that all walk up tickets may be sold before they get to the front of the line. The visitor center also serves as a gateway to enter the cave through its historic entrance, board concession-run shuttle buses for remote cave entrances, access over seven miles of hiking trails, or enter the lodge and restaurant located nearby. Because the lodge is being remodeled, there was a temporary gift shop established in a mobile building between the visitor center and the lodge at the time of the writing of this plan. Visitor services such as dining and lodging are run by park concessionaire, Explore US. Accessibility information in the visitor center is not prominent.

Interpretive Media

Interpretive media at Mammoth Cave National Park is primarily designed in-house using special teams. Permanent staff members can volunteer to be part of the "Exhibits Team" and develop interpretive media as a collateral duty. The park facilities management team has a sign shop on site which includes a CNC router machine that very few people are trained to operate. The park also has a local preferred vendor for design and fabrication.

Indoor Exhibits

The park's main indoor exhibit is a traditional walkthrough exhibit in the visitor center which was created and installed by Southern Custom Exhibits in 2012. The exhibit entry gives visitors an immersive opportunity to feel like they are entering the cave through the twilight zone and

includes a wide variety of information relating to the natural science of the cave, the surrounding landscape, and the history of the people who explored and worked in and around the cave. In the center of the exhibit there is a small theater made to look like a chamber of the cave which can accommodate approximately 20 people viewing the park film under the watchful eye of model cave explorers. The park is considering refreshing an adjacent exhibit room to accommodate a second film with additional interpretation.

Overall, the exhibits convey individual topics beautifully with excellent tactile and interactive elements and three-dimensional displays. However, the exhibit as a whole does not seem to have an obvious or coherent theme tying all of the elements together and park staff noted a lack of information relating to park botany and gaps in history. The park routinely works with Southern Custom Exhibits to repair tactile and technological features and keep them in good working order. While the exhibits are not very old and should expect several more years of useful life, the park is working on exhibitry upgrades to enhance accessibility and interest.

The entryway into the exhibit features a temporary display case and limited signage. The park routinely uses this fairly large space for temporary exhibits. At the time of this report, the park featured a temporary exhibit for Bat Week, a Christmas tree dedicated to veterans, and student artwork.

Outdoor Exhibits

Mammoth Cave currently has 219 outdoor interpretive assets catalogued in FMSS representing \$228,997 in replacement value. Staff report that additional assets are not properly accounted for in FMSS, but it is difficult to assess exactly how many assets might be missing from the inventory. Of the assets that are catalogued in FMSS, more than half are past their life expectancy and overdue for replacement. Replacement cost of overdue assets as well as assets currently due for replacement is estimated at \$145,856.

One of the highlights of the park's existing outdoor exhibitry is the Echo River Spring Trail. This fully accessible trail allows visitors to explore the woods near Green River Ferry and the Green River and experience the power of water shaping both terrestrial and subterranean landscapes as it flow in and out of the cave. The trail features a number of stops with pull-outs, beautiful waysides with tactile elements, and solar powered audio description. Clear plexi-glass cutouts on the pedestrian bridge allow people sitting at wheelchair height the opportunity to see the river below without the barrier of bridge infrastructure blocking the view.

Another recent addition to the park's outdoor exhibits is the Beneath Your Feet Trail. This trail features small waysides around the Visitor Center that tell visitors what the cave below them looks like. The waysides include a QR code which visitors can scan with a smart phone to link to the park website where they can see and/or hear a recording of a Park Guide talking about the underground feature on-site.

The park features limited exhibitry in the cave including lighted display cases of Native American artifacts. There are numerous historic artifacts throughout the cave including impressive saltpeter works, consumption lodges, mining sites, historic trails, and memorial alleys, however, interpretive media in the form of waysides is confined to the area designated for self-exploration. There are

currently no interpretive media in the area of the cave that is accessible for people with mobility challenges.

Waysides

The park has beautiful waysides located throughout the park, most of which are designed locally. Generally the park's waysides have beautiful visual elements and many feature excellent tactile features, however text design tends to be blocky and dominant when compared to the visual elements of design. While waysides on the Echo River Spring and Beneath Your Feet trails incorporate technology to allow visitors to listen to audio descriptions of information on the waysides, most do not, and very few incorporate braille or raised lettering.

Publications

Like other aspects of interpretive media, the park's publications are mostly designed and maintained by special teams of staff who volunteer to do this work as a collateral duty. The exception is the Junior Ranger book sold in the Eastern National bookstore which creates a beautiful opportunity for Junior Rangers to connect to the park, as well as other parks, by exploring various NPS careers. The park's unigrid provides a great deal of information in a small space, but it is dated and does not feature recent trail additions or accessibility information. A reprint of the unigrid is underway which will address these concerns. The banner on other park handouts needs to be updated.

Walks, Talks, and Tours

According to data analyzed from the 2019 Servicewide Interpretive Database and National Park Service Visitor Use Statistics, an impressive 82% of visitors to Mammoth Cave National Park participate in at least one formal interpretation or education program. This is largely due to the fact that most in-cave experiences require two guides for safety and resource protection purposes. The Cave and Karst Management Plan prescribes tour capacities ranging from 12-150 visitors per tour with tours departing approximately every 15 minutes throughout the day from the visitor center during the busiest time of the year.⁹ A variety of other tours (including one accessible tour) are offered throughout the day and vary depending on season. While many tours now take place on surfaces lined with pavers or concrete, others follow routes on historic trails that are nearly 100 years old and which still preserve the marks of the people and animals that made them, still others follow very primitive routes that have been developed little, if at all. Tour group size can range anywhere from 12-150, but regardless of group size, two NPS Park Guides are assigned to the group to provide safety, wayfinding, emergency prevention and response, and interpretation. Of note, at the time of this report, tours were running at 70% capacity in order to mitigate exposure to COVID-19, and the smaller, more intimate, and physically challenging Wild Cave Tours were cancelled.

⁹ *Cave and Karst Management*, 85

Figure 4.1 Personal Services Table

People Using Personal Interpretation Services (by Type of Service)		
Total People Using Personal Services: 1,116,157*		
Type of Personal Service	# of Interpretive Contacts	% of Contacts by Service
Visitor Centers / Contact Stations	582,113	52%
Informal Interpretation	20,651	2%
Formal Interpretation	428,273	38%
Demonstrations and Performing Arts	0	0%
Junior Ranger Contacts	26,112	2%
Community Outreach	21	0%
Special Events	2,061	0.18%
Education Programs: In Park	22,998	2%
Education Programs: In Schools	33,312	3%
Education Programs: Virtual	616	0%
Total Education Contacts	56,926	5%

* Note that because visitors must enter the visitor center before attending a tour, visitors using interpretive services are counted at least twice making it appear on first glance as though more people use interpretive services than visit the park.

A sampling of formal interpretive programs showed that interpretive staff at Mammoth Cave are highly skilled story tellers who are knowledgeable and convey genuine enthusiasm, humor, and excellent customer service.

In addition to the park’s ample tour schedule, interpretive staff offer evening campfire programs, 15-minute patio talks outside of the visitor center, special seasonal programs to celebrate holidays and events such as Bat Week and Wildflower Week. A breakdown of which interpretive services are most used by the park’s visitors and community members can be seen in Figure 4.1. The park was also recently recognized by the International Dark Sky Association as a Dark Sky Park and interpretive staff sometimes offer star parties. These have been popular and draw around 400 participants per event. A local university offered to provide the park with a 24-inch telescope, but the park currently does not have the dome or space to put it.

The park is in the process of considering additional tour opportunities both above and below ground including an all-day Ridge Tour which would allow visitors to access the cave through the Great Onyx entrance and explore the above-ground history of the community that supported Mammoth Cave during the early days of its operation, the Wondering Woods Tour which would allow visitors to access a currently unused cave and experience the scenic beauty and interesting geology of the park’s terrestrial landscape, and all-day River Styx Tour which is dependent on the addition of cat-walk infrastructure to cross the cave’s largest subterranean river, the Crystal Cave

Tour which would divert visitors to one of the lesser used entrances to the caves, and the Grand Historic Tour which would combine the routes of the existing Historic, River Styx, and Gothic Tours.

Use of Technology

Web and Social Media

Like many parks, Mammoth Cave National Park assigns website and social media management to staff as collateral duties. Because of its robust interpretive staff, Mammoth Cave is able to establish teams dedicated to web and social media management, but these teams interact with web and social media part-time in a model that is more typical of smaller parks with less visitation. Web and social media content are reviewed and approved by the Chief of Interpretation and Visitor Services. The park’s website is quite large and features a plethora of information for visitors including information necessary for trip planning as well as interpretive content. The park uses alerts and its website to try and direct visitors to purchase tour tickets ahead of time and links directly to Recreation.gov. However, visitors have to click and read through quite a bit of material before accessing the link and may be frustrated by the process to purchase tickets. Accessibility information is available on the website under “Plan Your Visit” but would be easier accessed and more welcoming if it was included as one of the featured items on the main page.

Apps

Like other parks, Mammoth Cave is using the relatively new NPS app to assist visitors with trip planning and wayfinding. Visitors can find a little information about most topics relating to Mammoth Cave on the app, but content is still being developed and not in depth. Most tours and trails, for example, are not yet listed on the app, and accessibility information is not present. While the park has done some innovative work incorporating technology into its Beneath Your Feet Tour, the experience could be further enhanced and serve more people if it was replicated or linked to the app. There are many opportunities to incorporate additional content in the app, overall though, the park is moving in the right direction exploring the confluence of technology, accessibility, and enhanced visitor experience.

Audiovisual

Mammoth Cave National Park features a 10-minute park film in the visitor center exhibit titled *Hidden Wonder: Mapping Mammoth Cave*. Overall, the film does an excellent job connecting today’s visitor experience to both historic and ongoing exploration of the longest cave in the world. Watching the film in a darkened, simulated cavern under the watchful eye of cave researchers creates a memorable experience. The park has two more professionally produced films available for visitors to watch on its website, and at least one more film completed by PBS, *A Place Called Home*, could possibly be included in the park’s video library. The park is considering modifying the existing exhibit space to allow visitors to watch additional films.

Audiovisual elements are incorporated in other areas of the park’s indoor and outdoor exhibits and the park website. These features are mostly included to improve exhibit accessibility and have been discussed elsewhere in this plan and therefore will not be further discussed here. However, one additional item of note related to the park’s use of audiovisual technology is the cave’s lighting system. Currently, cave lighting is achieved in the most heavily visited spaces using very warm amber colored bulbs which are switched on and off by tour guides as they lead people through the cave in order to reduce the growth of algae and other lamp flora on wet formations and other negative impacts of constant lighting. The warm colored bulbs create a dim atmosphere where the most dramatic cave features and structures are visually flattened in an orange glow and less obvious features are lost in the shadows. Park staff from all disciplines report being dissatisfied with existing cave lighting and the park’s cultural landscape report recommends the adoption of LED light projection technology to highlight certain cave features for interpretive purposes. The park has a cave lighting committee which has been working on a solution to the problem of cave lighting for the past 20 years. The *Cave and Karst Management Plan* recommends several mitigation strategies for monitoring and mitigating algae growth in order to facilitate a safe and enjoyable visitor experience while simultaneously reducing adverse impacts to the cave and its resources.¹⁰

Education Programs

Mammoth Cave National Park enjoys a robust education program. In fact, the program is one of the largest in the Service and provides place-based education opportunities for nearly 60,000 students annually. In recent years, and in part due to the COVID-19 pandemic, the park expanded its distance learning capabilities and offerings which provides new opportunities reaching an impressive number of students at home and abroad.

The program is managed by one dedicated supervisor with public education experience and staffed by three dedicated education technicians and supplemented with four other staff from Interpretation and Fees at times during the year. This staff is further supplemented by park guides assigned to interpretation on a rotational basis. The park cultivates relationships with schools in the geographic region and offers multiple in-classroom and in-park experiences for various grade levels. In addition, the park supports schools travelling for field trips up to a day’s drive away and offers virtual learning opportunities for approximately 20,000 students.

Some of Mammoth Cave’s innovative practices include hosting multiple teacher workshops so teachers can be active participants in connecting state science standards to Mammoth Cave and act as “the voice” of consistent educational programming. Mammoth Cave’s environmental education program is extremely organized with curriculum-based lesson plans, options, and hands-on learning materials neatly stored for easy staff access. The park also leverages the Teacher Ranger Teacher program to develop new programs and recently leveraged this opportunity to correlate

¹⁰ Ibid, 80

all existing activities to new state science standards. While the park has hundreds of programs “on-the-shelf” staff work to provide custom solutions for individual teachers and generally add new programs to the existing catalogue each year. Staff are encouraged to create at least four new programs each year to achieve excellence on annual evaluations.

Community Outreach

The relationship between Mammoth Cave National Park and its neighboring communities is complex to say the least. The communities near Mammoth Cave formed, at least in part, to support travel and tourism, and tourism connected to Mammoth Cave continues to be vitally important to the local economy.¹¹ But, at the time that Mammoth Cave became a national park, some 600 families were displaced, many unwillingly by eminent domain, and bitter feelings remain among many of those families’ descendants. However, relationships are improving, and the park hosts numerous events to connect local families to the park and honor their history. In addition to the park’s robust education program, which connects tens of thousands of students to the park annually with place-based education, the park hosts special events like Roots in the Cave, and the annual Cave Sing which appeal to local audiences. At various times the park has also offered free tours to students and their families who participate in a 4th grade environmental education program.

Three historic churches remain standing on park land with congregations in the area. Recently, one congregation requested to use one of the churches to hold services in the park. The park is actively engaged in meetings with this congregation as well as others with historical ties to the park. The park also has more than 80 cemeteries within its borders in various states of repair, from fully maintained, to reclaimed by the forest. These cemeteries are the final resting place of cherished ancestors of community members living today with some being more accessible than others. Descendant families as well as area genealogical research societies are very interested in these sites and the park is considering various ways to manage them for public benefit.

Volunteer Programs

At Mammoth Cave, most volunteers participate in science and resource stewardship volunteer opportunities. Accordingly, the science and resources management division oversees the park’s volunteer program and recently hired a full-time volunteer coordinator. Because the program is not run by interpretation, this plan does not assess its current operation, but does include recommendations for enhanced volunteer activity in interpretation in the recommendations section.

¹¹ 2020 Spending Effects

Relevance, Diversity and Inclusion

Relevance

Nationwide, cultural institutions (including parks) are experiencing a phenomenon known as negative substitution. What this means, is that people are exiting the visitor base faster than they are being replaced.¹² In order to maintain their relevance, parks must evolve to serve changing demographics and next generation audiences. At Mammoth Cave, the park already has a strong operation to maintain its relevance with next generation audiences through its education program. These efforts can be enhanced by leveraging technology to make trip planning easier, creating more visually inclusive media, telling more inclusive stories that are relevant to women and people of color, and providing a variety of experiences relevant to people with varying resource and ability levels.

Diversity

U.S. Census data show that 8.6% of people living in the tri-county area around Mammoth Cave identify as people of color.¹³ However, employees identifying as people of color at Mammoth Cave represent only 1-2% of total staff make-up. While it is well-known that the National Park Service struggles to recruit and retain people of color nationwide, the representation of people of color working at Mammoth Cave currently falls below national averages for diversity in the total population, as well as NPS workforce, and local population. This is important because potential visitors report feeling less welcome, and less interested in visiting, places where they don't see people like them represented in staff demographics.

According to *Visitor Service Project* data, less than 10% of visitors to Mammoth Cave identify as people of color.¹⁴ This is slightly below national visitor statistics which show 12% of visitors to national parks identify as people of color. It is also well below local census data for Kentucky which show 39% of the state's population identifies as people of color,¹⁵ and it is well below national demographic data for the U.S. which show that 24% of the country identifies as people of color.¹⁶ It is also worth noting that national demographics are shifting and projected estimates show that by 2065, 54% of the U.S. population will identify as people of color.¹⁷ In order to maintain its relevance, the park has to continue to seek ways to be more relevant to diverse audiences.

¹² Market Potential

¹³ Headwaters Economics, *A Demographic Profile [Hart, Edmonson, Barren Counties]*, Headwaters Economics' Economic Profile System, September 10, 2021

¹⁴ *Visitor Services Project*, 12

¹⁵ United States Census Bureau, "Kentucky Population Topped 4.5 Million in 2020," accessed October, 2021, <https://www.census.gov/library/stories/state-by-state/kentucky-population-change-between-census-decade.html>

¹⁶ United States Census Bureau, "QuickFacts," accessed October, 2021, <https://www.census.gov/quickfacts/fact/table/US/PST045219>

¹⁷ Pew Research Center, "Modern Immigration Wave Brings 59 Million to US, Driving Population Growth and Change Through 2065," September 28, 2015, accessed October, 2021, <https://www.pewresearch.org/hispanic/2015/09/28/modern-immigration-wave-brings-59-million-to-u-s-driving-population-growth-and-change-through-2065/>

Inclusion

Mammoth Cave has made great strides to be more inclusive of people with disabilities. The park features four ABAAS trails above ground and an accessible tour for visitors to experience the cave. Two of the park's trails also feature audio and or video description of waysides and the indoor exhibit is ABAAS compliant. The park has an interest in creating additional ABAAS trails and tour opportunities and is working to incorporate additional accessibility features in the indoor exhibit. Additionally, the park has a pilot partnership with a non-profit organization that uses specialized equipment to get people with mobility issues into natural places that previously would not have been accessible. The park will benefit from further incorporation of the principles of universal design and communication of its accessible features to be more welcoming and inclusive.

A hasty content analysis was conducted of Mammoth Cave's interpretive media and programs analyzing the park's wayside data in FMSS, evaluating the indoor exhibit, reviewing the park website, and sampling interpretive programs and conducting interviews with staff. This analysis showed that the park's interpretive program includes information and imagery relevant to the experiences of Native Americans, African Americans, and women who were prodigiously represented in the park's history. Of note, the park's website does a great job including diverse people and stories in its History & Culture section. But, overall, the stories of diverse people represent such a small proportion of the park's interpretive content (estimated at less than 5%) that the end result makes these stories feel tokenized rather than like integral parts of the larger story for Mammoth Cave. The park recently completed an extensive ethnography of people connected to the park, but again, information in the ethnography related to African Americans, Native Americans, and women is underrepresented. It is worth noting that the park has a follow-up special study of African American history planned and funded for FY23. The park is also addressing the access, use, and maintenance of the Bransford Cemetery (where noted historical figure and African American cave guide, Mat Bransford, is buried) in its pending backcountry management plan.



Business and Administration

Mammoth Cave’s interpretive program features some of the best business practices in the region, if not the Service. The program operates on an annual budget of roughly \$3.7 million. The use of 1A2G funds to supplement ONPS and other funds creates stability for interpretive services and ensures adequate resources are available for historic site maintenance and interpretation. Combined with the park’s use of mixed tour appointments, the program enjoys flexibility and program sustainability rarely seen in the NPS. These innovations allow the park to maintain a robust staff of 50 permanent guides and around 20 seasonals (13 interp, 2 environmental education, and 5 fees). Intermittent guides can be brought on and off schedule during shoulder and slow seasons to respond to public demand. Even so, tours are regularly booked to capacity days, if not weeks in advance, and the park struggles to keep up with the demand. Mammoth’s large interpretive program and variable tour schedule create a complex operation which requires intricate and time-consuming schedule management.

Staff are generally cross trained to perform guide, education, and fees work. Guides receive about three weeks of training during their first year in order to cover NPS requirements, learn the technical aspects of guiding and emergency response in the cave, and some very basic interpretation. Formal interpretation training consists of a half-day block of instruction from the Interpretive Development Program. Most interpretation training happens on the job by shadowing more experienced guides and guides are encouraged to research and write their own programs and tap into their passion to find a way to convey stories with meaning. Guides typically work as “trailers” in a two-person team until they are comfortable leading a tour. There is very little opportunity for continuing education or cross-training in a guide’s second and subsequent seasons.



Audiences

The *Mammoth Cave National Park Visitor Study, 2006* showed that 85% of visitors to Mammoth Cave are first-time visitors (meaning they visited for the first time in five years).¹⁸ While the study is dated, interviews with staff and analysis of park visitation statistics suggest this is still the case. The *Visitor Study* also showed that nearly 50% of visitors come from Kentucky and the surrounding states, a number corroborated by recent data generated from Rec.gov ticket sales and staff observations.¹⁹ According to the *Visitor Study*, over 90% of visitors are white, which corresponds roughly to national trends in visitation and is supported by staff observation.²⁰ The *Visitor Study* reported that just 3% of visitors were from other countries in 2006.²¹ Staff observation suggests that this number rose significantly before the COVID-19 pandemic, then tapered off again. According to the *Visitor Study*, 42% of visitors are between the ages of 20 and 50, 38% are under the age of 20, and 20% are over the age of 50.²²

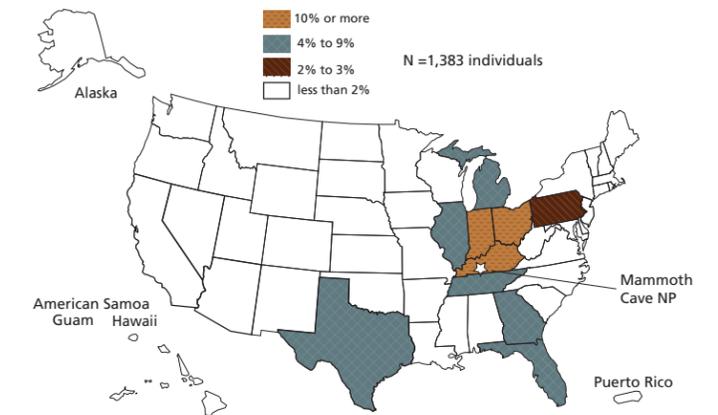


Figure 4.2 Proportions of United States visitors by state of residence.

¹⁸ *Visitor Services Project*, 10

¹⁹ *Ibid*, 8

²⁰ *Ibid*, 12

²¹ *Ibid*, 9

²² *Ibid*, 11



Recommendations

The following recommendations were selected as top priority actions the park will endeavor to pursue in the coming 5-7 years in order to meet its strategic goals. Because operating conditions and visitor needs can shift over time, a full list of recommendations (including lower-priority items not selected for implementation) is included in the park's implementation toolkit.



Visitor Experience

Priority Tier 1

- Resolve cave lighting issues. This issue has been ongoing for decades and park staff frequently cited the need to resolve it. It seems to be the number one issue impacting current visitor experience. Consider taking the following actions:
 - Hire a lighting design company to replace lighting in Zone A areas with the best technology to provide appropriate lighting for safety, viewing and resource protection such as LED lighting with adjustable temperatures to control lampenflora while still providing a safe and enjoyable visitor experience that allows authentic viewing of karst formations.
 - Follow recommendations from the Cultural Landscape Report to incorporate LED spotlight projections with adjustable temperature ranges on small trail signs to enhance visitor experience and self-discovery of certain cave features during large-group tours.
 - Follow recommendations from the Cultural Landscape Reports and Karst Management Plan to update and implement cave lighting plan using a multi-modal approach to remove and control algae in Zone A areas (see additional recommendations on use of volunteers below).
 - Where algae growth continues to exceed thresholds established by the Karst Management Plan, in spite of other mitigation measures, adjust color of LEDs to the warmer, dimmer, less attractive ranges.
- Update hiking information found in all publications, on the website, and on the app to reflect the current list of trails and an updated map. (See further recommendations for interpretive media and technology below.)

Priority Tier 2

- Delineate space and roles for competing retail operations. Request a concessions and retail product review from the regional office.

Interpretive Media

Priority Tier 1

- Elevate and celebrate the human history section in the visitor center (after turkey nature-relationship section). Reprint the exhibit to fit park themes and tell more inclusive stories identified in the theme matrix. Incorporate technology to create more opportunity for interactive engagement (touch screens, VR, holograms, 3D printing).

- Pursue accessibility upgrades to provide audio showers at various displays in the visitor center. Consider push button or some sort of manual on/off switch to also allow for silence and alleviate multi-sensory sensitivities.
- Conduct wayside inventory and content analysis. Load all waysides in FMSS, cross-reference and update 2014 wayside plan. Initiate Shelf Ready process for replacement.
- Consolidate wayside assets in FMSS (panel, frame, INMD should all be components of a single asset, not listed as separate assets).
- Pursue replacement of waysides due, or overdue for replacement with Cyclic Maintenance funds. Use the results of content analysis to ensure new waysides tell inclusive stories representative of the population of America and incorporate Universal Principles of Design (ex. tactiles, raised lettering, and/or audio descriptions) to make information more accessible and enjoyable for all.
- Systematically inventory and update all publications. Visitor Center & Front Country Area Trails is the most attractive of the park's current handouts, consider replicating design to standardize and refresh all pubs. Eliminate obsolete pubs, including the Beneath Your Feet handout. Update the banner on NPS handouts, the regional office will provide templates to complete this in-house.
- Ensure trail information included in pubs is also reflected on the park website and app. The website should have the most in-depth information available, with on-site pubs supplementing the most important and frequently needed information.
- The unigrid is in the process of being updated, continue this process and ensure trail information and photos are updated.
- Install monitors in Shelters A and B to explain tours and show fitness requirements.

Priority Tier 2

- Define a gallery space for temporary exhibits (possibly the multi-purpose room, or left-hand side of entrance) and purchase additional rolling cases, gallery rails, and/or temporary gallery walls to delineate the space and improve the professional appearance of temporary exhibits. Use Government Publishing Office (GPO) foam core printing through FedEx Office for an inexpensive alternative to in-house printing that will elevate the professional look and quality of temporary exhibits.
- Incorporate the multi-purpose space in the visitor center exhibit to create a space for dialogue, additional film viewing, and VR experiences. Remove the map and science/research/administrative panels. Relocate the problematic live data feed to the main visitor center lobby where it can be updated regularly. Celebrate the park's biosphere status and other accolades by posting plaques in the lobby or other visitor center space as standalone elements that do not need additional interpretation. Leverage the turkey diorama to unite nature and history with new panels and signage identifying plants, animals, and their historic uses. Talk about the relationship between plants, animals, and people to transition to the next section of the exhibit on human history.

- Revisit the Backcountry Map & Guide brochure. The map is good, but the cover photo is pixelated. The printing cost difference between full color and spot color is negligible, so go for full color. Remove unnecessary information to improve information density. Much of the information currently found in the brochure could be covered on the trip planning section of the website rather than in a publication. The list of trails and distances needs to be viewable alongside the map. The list could also specify whether trails are pedestrian, bike, and/or equestrian.
- Create a new river recreation publication focusing on information for paddlers and anglers.
- Replace harsh lighting on existing Discovery Tour waysides with backlit panels.

Priority Tier 3

- Install virtual rangers and information kiosks outside visitor center to answer FAQs and contribute to above ground interpretive experience and alleviate indoor congestion and lines.
- Create a cave-inspired outdoor exhibit that features obstacles to give people an accessible cave-like experience and know what to expect on cave tours. (Think Fat Man’s Misery. Can you fit through this? Can you duck under this? Can you climb this flight of stairs 40 times?) Kids will love playing and climbing on the equipment. Adults will appreciate a fun way to test their abilities and self-select for appropriate tours. People with disabilities, time constraints, or who arrived without a tour reservation will appreciate an alternative way to experience features of the cave.

Walks, Talks and Tours

Priority Tier 1

- Pursue ways to improve large group tour experiences by supplementing them with additional staff (paid or volunteer) on trail routes to help visitors in the middle of a line of people hear and see cave features and keep pace with the larger group.
- Use the park’s updated and revised themes and theme matrix to prioritize must-tell stories (minority contributions). Incorporate thematic tours into the tour line-up to diversify available experiences using existing routes above and below ground and elevate untold stories. Ex. Haunted Tour, Innovations in Science, Money-Making Schemes, Women of Mammoth Cave, Earliest Explorers, etc.
- Add surface tours and combination tours such as Wondering Woods, and Day on Flint Ridge. Incorporate historic surface structures and developed sites in surface interpretation.

Priority Tier 2

- Add a kayak roving program to address the explosion of river recreation. This can be done relatively inexpensively by purchasing two kayaks with associated safety gear and assigning two staff members to rove the river on weekends. Data and staff observations from this test can help determine the need and plausibility of additional water-based interpretive offerings in the future such as tours, increased roves, or launch ramp programs.
- Capitalize on the park’s designation as an International Dark Sky Park. After all, “half the park is after dark.” Wondering Woods is an ideal place to combine an evening subterranean tour with a dark sky, full moon, or sunset experience to provide Twilight Tours. Partner with Western Kentucky University and other local astronomy enthusiasts and clubs to use volunteers to organize and staff dark sky experiences. Dark sky experiences can be funded through park amenity fees. Partner with neighboring communities to support, monitor, and sustain night sky program and communities should reap the benefit of Astrotourism which encourages more overnight stays.²³
- Create a 360° 3D imaging virtual tour for Beneath Your Feet so visitors at home can experience the trail and passages below from a computer or phone.

Priority Tier 3

- Interpret the historic routes, passages, entrances and boat tours no longer extant or available to the public. Consider options for building parallel trails to preserve and interpret historic routes. Consider the impact on existing trails when proposing new circulation systems. Consider noise and other impacts that new trails will have on visitor experience and historic resources.
- Develop the Crystal Cave experience as a combo tour with above and below ground interpretation of the Floyd Collins story.
- Contract for professional recordings to accompany Beneath Your Feet and other similar experiences. In-house audio descriptions for accessibility via the app are great, however, contracting for professional interpretive recordings to accompany Beneath Your Feet and similar self-guided experiences would enhance the experience for people with and without disabilities according to universal principles of design.

Use of Technology

Priority Tier 1

- Improve the park website and social media presence. Data show that visitor’s decision whether or not to visit a cultural institution or park is largely dependent on the person’s

²³ Colorado Plateau Dark Sky Cooperative, “Astrotourism & Recreation,” accessed January 2022, <https://cpdarkskies.org/astrotourism/>

experience with off-site technology *prior* to visiting.²⁴ Therefore, in order to attract key audiences identified by the park, it is crucial to provide a great experience for visitors on the park’s website and social media platforms. To enhance visitor’s digital experience, consider taking the following action steps:

- Conduct a systematic website review to update all webpages paying special attention to navigation and hierarchy needs. Any element of information should be found in three clicks or less. Accessibility information should be *readily available* and should be found in one click from any page and highlighted on the main page. Hiking information and maps need to be updated. Consider hiring a term, using project dollars to extend an intermittent employee, contracting with a third party, or using a dedicated visual information specialist to complete the review and updates expeditiously. A savvy volunteer might be able to do the review and update if the park can cover housing costs.
- Use content analysis to ensure that social media posts are representative of the greater population of the U.S. and that people of color, people with disabilities, and women are regularly and prominently featured.
- Codify the park’s commitment to equity in outdoors recreation on the homepages of the park’s website and social media pages.

Priority Tier 2

- Finish populating the park’s app with information related to surface experiences, especially hiking. Again, consider alternative methods to prioritize and complete this work such as contracting, creating a term position, using a long-term volunteer, or creating a dedicated visual information specialist position.
- Use existing films to provide additional viewing opportunities in the visitor center multi-purpose area and accessible tour area. Reuse content on social media to direct people to web viewing. Engage in area film festivals to seek new audiences for park films. Seek copyright approval to use additional films such as the one created by PBS *Mammoth Cave: A Place Called Home*.
- Consider establishing a visual information specialist (VIS) position to oversee web and social media teams and/or contracts. (See recommendations for business and administration.)

Priority Tier 3

- Create additional films, especially on human history. Make some of the new films 3D, virtual, and/or 360° format which can be shown in the accessible tour area, visitor center multi-purpose room, in VR goggles, and online. Continue with the project for a short history film.
- Eventually create a separate theater/multi-purpose room for film viewing, live performances, community meetings, and special programs.

²⁴ Colleen Dilenschneider, “Data Shows Barrier to Visitation is Offsite Technology (Not Onsite Technology),” *know your own bone*, accessed September, 2021, <https://www.colleendilen.com/2017/11/29/data-shows-barrier-visitation-offsite-technology-not-onsite-technology/>

Education Programs

Mammoth Cave’s education program is phenomenal and the only recommendation for the program included in this plan is to leverage the existing program to provide federal resume writing workshops in local communities to enhance the likelihood of attracting local, diverse, and or youth candidates for employment.

Community Outreach

Locals comprise one of the key audiences selected by Mammoth Cave staff for targeted outreach and services. In order to enhance outreach to folks living within a one-hour driving radius of the park and encourage additional visits and interactions between the park and its gateway communities, this plan recommends that the park continue and enhance special community-oriented days such as *Cave Sing* and *Roots in the Cave*. In addition, the park should offer surface tours and experiences targeted and communicated to gateway communities such as Wilderness First Responder training, Run/bike/paddle/hike with a Ranger, and Dark Sky programs.

Volunteer Programs

Priority Tier 1

- Leverage existing volunteers from science division and assign them occasional work in interpretation staffing the visitor center, performing trail functions on tours, roving the Discovery Trail, or offering special talks.
- Strategize with new volunteer coordinator to assess needs, develop position descriptions, and recruitment strategy.

Priority Tier 2

- Create “Algae Annihilators” volunteer group to mitigate lampenflora.
- Partner with regional ornithology, etymology, and botanical societies to conduct citizen-science monitoring throughout the park.
- Partner with local astronomy enthusiasts to provide dark sky programming.

Relevance, Diversity and Inclusion

Priority Tier 1

- Consider “all abilities” experiences vs “accessible” experiences whenever possible. Plan 15% added to standard exhibit/experience design estimates to include Principles of Universal Design.
- Make accessibility information prominent in the visitor center, and on exhibits, trails, tours, signs, pubs, the website, and social media. Make people with different abilities feel invited to interact with the park by displaying welcoming language and information that’s easy to find rather than inviting embarrassment or frustration by forcing people to ask or search for the information they need. Some examples include:
 - displaying an accessible trails brochure prominently in the visitor center lobby, as well as in sales and concessions spaces.
 - featuring accessibility information prominently on the homepage of the park website and within one click from any sub-page.
 - featuring an accessibility information stand in the visitor center lobby with accessible trails and tours info, information on self-guided audio tours, and information on American Sign Language availability.
- Establish a baseline for diverse media content through deliberate content analysis. Set goals commensurate with national demographics ex. “appx. 50% of interpretive media tell women’s stories,” “50% of interpretive media tell stories about African Americans/Native Americans,” “imagery of people on waysides represent 50% people of color, 50% women, 10% people with disabilities, 30% over the age of 55, 30% under the age of 25, and 40% between 25-55,” etc. Do the same for films, publications, web pages, and exhibits. This can be useful language to include in media development contracts, but it can also be helpful for internal planning and media development. The park should use these goals as guidelines to help represent a diverse America, not as strict rules to measure success or failure. Success is telling stories that represent the authentic and accurate history of the park in a way that is relevant and meaningful to diverse audiences.
- Work with concessionaires, commercial use authorizations holders, and local businesses to provide comprehensive large-group experiences which are likely to be of interest to people of color who enjoy recreating at national parks for reunions, picnics, and family gatherings. Example: a large-group experience that includes a cave tour, catered lunch with ranger talk, and a historic tour of Flint Ridge. Or, a cave tour, catered lunch with ranger talk, and horseback ride or kayaking adventure.
- Follow recommendations from the park’s cultural landscape reports and Ethnography to conduct an additional ethnography for each affiliated Native American tribe as well as a public facing cultural guide with culturally sensitive and meaningful interpretation approved

for public dissemination. The regional office can provide an examples and assist with contracting and funds seeking.

- Complete formal consultation with the park’s Federally Recognized and Affiliated Native American Tribes before displaying artifacts, images, or stories pertaining to Native Americans and their history.
- Pursue a women’s history study to flush out the multitude of interesting historical women who lived and worked in and around Mammoth Cave. If the Civil Rights Fund is expanded, a Women’s History study should qualify for funding under this source.
- Follow recommendations from the Cultural Landscape Report to further develop interpretive exhibits and topics to include the lives of African Americans who played a vital role in the development of cave tour routes, the long history of cave exploration and surveying, the pre-Contact American Indian use of the cave, Mission 66 development, segregation at national parks during the Jim Crow era, and the impacts of Climate Change on the cave and its resources and visitors.
- Incorporate the park’s newly revised themes into the development of regular interpretive programs and tours as well as interpretive media. Use the theme matrix to further elevate previously untold (or undertold) stories.
- Continue pursuing new ways to make cave experiences more accessible. Consider the following:
 - Enhance and expand partnerships with groups specializing in adaptive equipment and experiences for people with mobility issues.
 - Incorporate new technology underground such as a VR dome, or multimedia/multi-sensory display to create a comparable experience and tangible connections to the natural and cultural wonders found throughout the cave.
 - Incorporate mobile tactile interpretive kits or tactile exhibits into accessible tours.

Priority Tier 2

- Establish an Allies for Inclusion program. Pair with Audience Centered Experience (ACE) training to create dynamite opportunities for staff as well as visitors to engage in dialogic experiences. The Allies program is shown to support recruiting and retaining diverse employees who in turn, attract more diverse audiences. Training costs appx. \$20k per class for 20 students, or the park can compete for 1-2 seats at a time in courses offered by the Washington Office.
- Offer Wilderness First Aid and outdoor skills camps catered to people of color. Partner with groups like The Explore Kentucky Initiative, Kentucky chapter of Outdoor Afro, and Adelante to help communicate and recruit for participants.
- Work with the regional office of cultural anthropology (Amanda Griffis at the time of this report) to build tribal relationships. Share existing cultural studies (i.e., Ethnographies, CLRs

and archaeology reports with affiliated tribes). Do not assume they were shared before. Include tribes in consultation on future cultural studies and interpretive plans, not just those mandated by Native American Graves Protection and Repatriation Act (NAGPRA).

Priority Tier 3

- Initiate an annual or biannual meeting with tribes to discuss park management and interpretation.
- Cultivate an all-abilities sensory garden, or nature trail, for native plants, birds, insects and small mammals in the visitor center area. Invite visitors to see, smell, taste, touch, listen and reflect.

Business and Administration

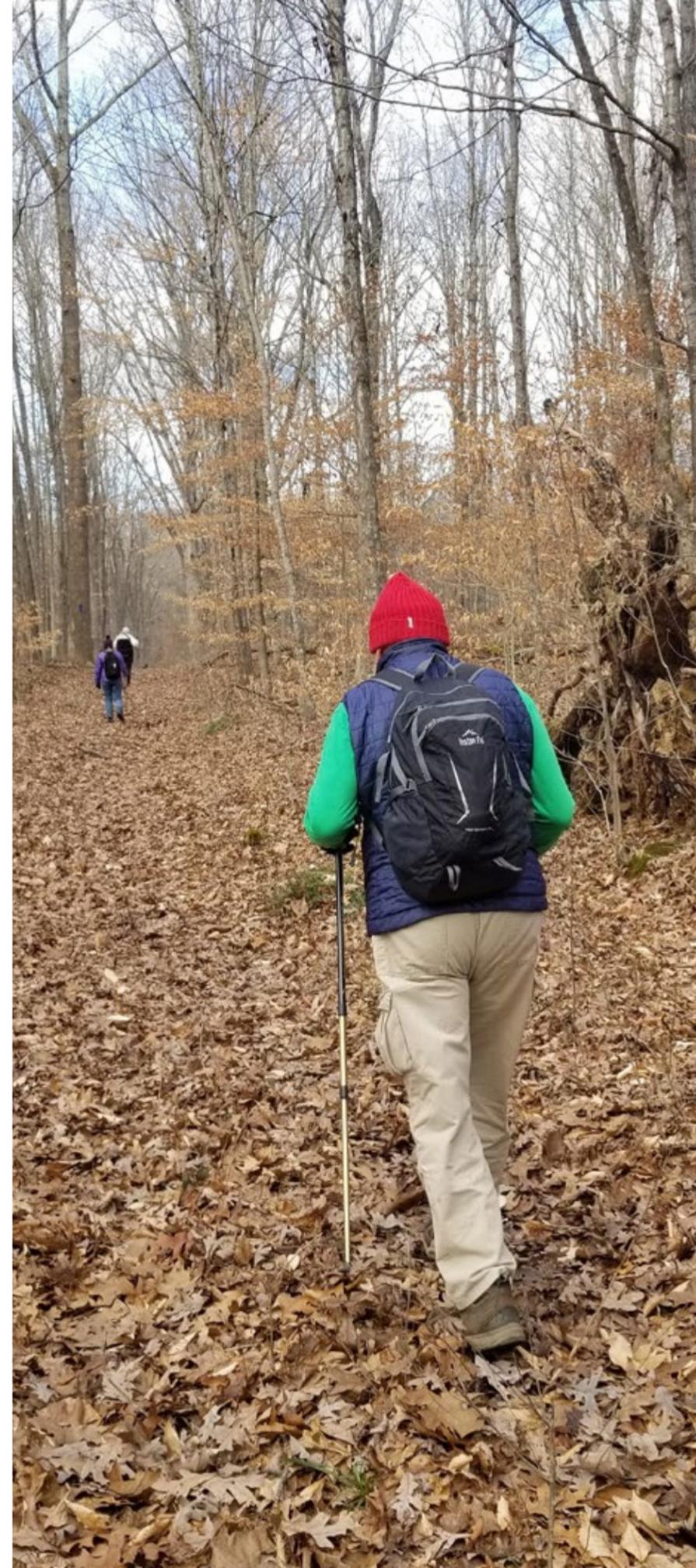
Mammoth Cave National Park has excellent business practices overall with some very innovative approaches. In addition to continuing its high-quality practices, this plan recommends that the park undergo a formal staffing review facilitated by the regional office to review the organizational chart for Interpretation and Fees and look for ways to improve efficiencies and supervisory span of control. The park should also develop a graduated training program that limits the information provided to first-year guides only to that which is vitally necessary, and rewards returning guides with expanded training on interpretation and park resources. The park should also seriously consider hiring a full-time GS-09 visual information specialist to handle the large volume of information and design requirements to keep up with park publications, exhibits, and digital services.

Key Audiences

During planning, staff from Mammoth Cave National Park identified the following key audiences:

- Youth and families with children
- People who identify as ethnic minorities
- Locals residing within an hour of the park
- People with disabilities

These audiences were selected because, while visitation to Mammoth Cave's subterranean features is currently at (or very near) saturation, the park has developed a strategic goal to enhance surface recreation in order to provide additional opportunities for visitors to experience the significant



surface attractions preserved at Mammoth Cave National Park, inspire future generations to conserve national park resources, and encourage additional economic benefit to the park's gateway communities. Further, data show that Mammoth Cave National Park visitors currently represent a disproportionately low number of people of color and people with disabilities.²⁵ Therefore, while the park will always endeavor to serve people from all walks of life, the recommendations in this plan provide targeted universal strategies for reaching key audiences while simultaneously enhancing the experiences of all visitors.



Implementation Plan



Summary

The implementation plan for Mammoth Cave’s Long-Range Interpretive Plan is presented as a Gantt Chart over seven years. This chart incorporates the highest prioritized recommendations selected for implementation by park staff and is highly adaptable and customizable so the tasks outlined in the plan can be changed, revised, or updated as needed to respond to an ever-changing operating environment. Readers should refer to the digital version of the Implementation Plan for the latest status on plan implementation. A summary of selected recommendations is included here in Figure 6.1 for reference.

The theme matrix tables seen in Figure 6.2 explore under-told narratives and align them with the new themes developed by this plan as well as sources for further academic research and names of noteworthy persons (when known). The park should use the theme matrices in this plan to develop new interpretive programs, products, and exhibits that tell the whole story of the park and its relevance to the diverse experiences of America's people.

Figure 6.1 Selected Recommendations Tables

Indoor Exhibits			
Project Names and Task Titles	Priority	Goal	Cost
Load Exhibit in FMSS	1	1, 2, 3, 4	\$0-\$10k
Perform Content Analysis	1	1, 2, 4	\$0-\$10k
Install Audio Showers	1	1, 2, 3, 4	\$10k-\$50k
Develop Inclusivity Metric Guidelines	1	1, 2, 4	\$0-\$10k
Update Human History Section (review LRIP)	1	2, 3, 4	\$10k-\$50k
Contract for Exhibit Fabrication	1	1, 2, 4	\$10k-\$50k
Install New Exhibits	1	1, 2, 4	\$10k-\$50k
Contract for Technology Upgrades	1	1, 2, 3, 4	\$50k-\$150k
Install Tech Elements	1	1, 2, 3, 4	\$0-\$10k
Seek Funds for Multi-Purpose Room Remodel	2	1, 2, 3, 4	\$0-\$10k
Contract for Multi-Purpose Room Remodel	2	1, 2, 3, 4	\$0-\$10k
Define Temp Exhibit Space (part of Multi-Purpose Room Remodel)	2	2, 3, 4	\$0-\$10k

Outdoor Exhibits			
Project Names and Task Titles	Priority	Goal	Cost
Update Wayside Plan	1	1, 2, 3, 4	\$0-\$10k
Initiate Shelf-Ready for Wayside Replacement	1	1, 2, 3, 4	\$0-\$10k
Consolidate Wayside Entries in FMSS	1	1, 2, 3, 4	\$0-\$10k
Seek Funds for Wayside Replacement	1	1, 2, 3, 4	\$0-\$10k
Replace Cave Waysides with Backlit Panels	1	3	\$0-\$10k
Seek Funding for Cave-Inspired Outdoor Exhibit	2	1, 3, 4	\$0-\$10k
Create Cave-Inspired Outdoor "Play" Exhibit	2	1, 3, 4	\$150-\$500k
Install Monitors on Shelter A and Shelter B	3	1, 2, 3, 4	\$0-\$10k

Publications			
Project Names and Task Titles	Priority	Goal	Cost
Inventory Pubs to Retain, Revise, or Retire (and update banner)	1	1, 2, 4	\$0-\$10k
Update Hiking Map and Trail List in All Pubs	1	1, 2, 3, 4	\$0-\$10k
Update Unigrid (yearly); FY23 needs to have accessible info and recent trail additions	1	1, 2, 4	\$0-\$10k
Update Backcountry Map and Brochure	2	1, 2, 4	\$0-\$10k
Create New Pub for Paddlers/Anglers	2	1, 2, 4	\$0-\$10k

Walks, Talks, Tours			
Project Names and Task Titles	Priority	Goal	Cost
Revise ISPs to include Updated Themes/Theme Matrix for Untold Stories	1	2, 4	\$0-\$10k
Conduct Audits on Tours; Check for Inclusivity	1	2, 4	\$0-\$10k
Continue Adjusting and Evaluating Tours to be Inclusive	1	2, 4	\$0-\$10k
Establish Day on Flint Ridge Surface/Cave Tour	1	2, 4	\$0-\$10k
Evaluate Effectiveness/Sustainability of Flint Ridge	1	2, 4	\$0-\$10k*
Establish Wondering Woods Surface/Cave Tour	1	4	\$0-\$10k*
Evaluate New Tours; Modify as Needed	1	2, 4	\$0-\$10k*
Train Staff in TORE	1	2, 4	\$0-\$10k
Recruit Volunteer Astronomy Corps	2	4	\$0-\$10k*
Partner with WKU for Scope and Training for Dark Skies (Spence pick dates)	2	4	\$0-\$10k*
Incorporate Twilight Tours into Wondering Woods	2	4	\$0-\$10k*
Monitor, Refine, and Promote Astrotourism with Partners	2	4	\$0-\$10k
Establish & Test Kayak Roves	2	4	\$10k-\$50k
Establish Launch Ramp Roving	2	4	\$10k-\$50k
Continue and Evaluate Kayak/Launch Ramp Roves	2	4	\$10k-\$50k
Establish Ranger-led Kayak Tours	2	4	\$50k-\$150k*
Add Virtual Tour to Online Version of Beneath Your Feet	2	3, 4	\$10k-\$50k
Establish Work Group to Develop Crystal Cave	3	4	\$10k-\$50k
Implement Crystal Cave Surface/Cave Tours	3	4	\$150k-\$500k*
Contract Professional Recordings for Beneath Your Feet	3	3, 4	\$10k-\$50k
Participate on team to Develop and Rehab Cave Trails	3	1, 2	\$10k-\$50k
Adjust Tours to allow Maintenance and Resource Rest (long-range scheduling)	3	1, 2	\$10k-\$50k

Leverage Technology			
Project Names and Task Titles	Priority	Goal	Cost
Systematically Review and Revise Entire Website	1	1, 2, 3, 4	\$50k-\$150k
Conduct Content Analysis on Digital Media Inclusivity	1	1, 2, 3	\$0-\$10k
Promote Park Commitment to Equity on Digital Platforms	1	2, 3	\$0-\$10k
Establish Full-time VIS	2	1, 2, 3, 4, 5	\$50k-\$150k*
Finish Populating Park App with Surface Info	2	1, 2, 3, 4	\$50k-\$150k
Repackage and Distribute Existing Films (508)	2	1, 3, 4	\$0-\$10k

Project Names and Task Titles	Priority	Goal	Cost
Seek Funding for New Films	3	1, 2, 3, 4	\$0-\$10k
Create New Films	3	1, 2, 3, 4	\$50k-\$150k
Begin Planning for Theater/Multi-purpose Auditorium	3	1, 2, 3, 4	\$0-\$10k

Education, Community Outreach, Partnerships

Project Names and Task Titles	Priority	Goal	Cost
Establish Resume Workshops to Hire Diverse Locals	1	2, 3	\$0-\$10k
Expand, Promote Special Events for Locals (i.e., Cave Sing)	1	2, 3, 4	\$0-\$10k
Promote Fitness with a Ranger Experiences; Promote to Locals (surface hikers)	1	2, 4	\$10k-\$50k
Promote Dark Skies Programs and Astrotourism to Locals	1	2, 4	\$0-\$10k

Volunteer Program

Project Names and Task Titles	Priority	Goal	Cost
Work with new VIP Coordinator to Establish VIP Needs/Recruit	1	1, 2, 3, 4, 5	\$0-\$10k
Leverage Existing SRM VIPs for Interp Special Events	1	4, 5	\$0-\$10k*
Incorporate VIPs in Large Cave Tours	1	5	\$10k-\$50k*
Continue Citizen Science VIP (Dragonfly Project)	2	4, 5	\$0-\$10k*
Partner to Expand Citizen Science VIPs (Project Bud Burst)	2	1, 2, 3, 4, 5	\$0-\$10k*

Accessibility

Project Names and Task Titles	Priority	Goal	Cost
Add-on 15% to Make "All Abilities" Experiences	1	1, 2	\$0-\$10k
Prioritize Accessibility Information on All Platforms	1	1, 2, 4	\$0-\$10k
Seek Funding for Accessible Cave Tour Area Redesign	1	1, 2, 3	\$0-\$10k
Redesign Accessible Cave Tour Area (murals)	1	1, 2, 3	\$10k-\$50k
Cultivate an All Abilities Multisensory Nature Trail	3	1, 2, 3, 4	\$150k-\$500k

Diversity and Inclusivity

Project Names and Task Titles	Priority	Goal	Cost
Conduct Content Analysis for Diversity	1	1, 2, 3, 4, 5	\$0-\$10k
Create Inclusivity Guiding Metrics	1	1, 2, 3, 4, 5	\$0-\$10k
Promote Park Commitment to Equity on Digital Platforms	1	2, 3	\$0-\$10k
Seek Funds for Special Studies	1	2	\$0-\$10k
Create Native American Interpretive Guide (Public Facing)	1	2	\$10k-\$50k
Create Women's History Study	1	2	\$50k-\$150k
Obtain from SRM and Share ALL Existing Anthropology Studies with Staff and Tribes	1	2	\$0-\$10k
Establish Allies for Inclusion Program (Pair with ACE Dialogue)	2	2, 4	\$10k-\$50k

Business and Administration

Project Names and Task Titles	Priority	Goal	Cost
Develop and Implement Graduated Training Program	1	1, 2, 3, 4, 5	\$0-\$10k
Establish Full-time VIS Position	2	1, 2, 3, 4, 5	\$50k-\$150k*
Request Formal Staffing Review from Region	2	1, 2, 3, 4, 5	\$0-\$10k

*Recurring

Theme: The diverse mysteries of nature that Mammoth Cave National Park protects continue to inspire scientific discovery and exploration.

Relevant Essential Questions

- Why should we care if rare and unusual animal species are extinguished?
- What have we learned from the history of agriculture and speleology at Mammoth Cave that could help us reduce the impacts of climate change today?
- What is the value of water at Mammoth Cave?

Topics, Programs, and Story Concepts	Key Audiences	Method of Delivery	People Who Represent These Stories	Sources for Additional Research
Advances in Biology, Geology, Hydrology, and Speleology.	Youth	Environmental Ed	<ul style="list-style-type: none"> ▪ Dr. Jim Quinlan ▪ Ralph Ewers ▪ Nick Crawford ▪ Joe Meiman ▪ Tom Poulson ▪ Kathy Lavoie 	<ul style="list-style-type: none"> ▪ Work with SRM office to provide training on geology and other natural sciences and processes for interpreters. Develop a quick guide to supplement training. Training and resource guide together should provide enough information for Guides to speak intelligently on geology for 2 hours.
Advances in Archaeology. Patti Jo Watson, a foundational researcher in North American archaeology in the 1960s, studied early plant domesticates in North America, established timeline for early Native American agriculture was done in North America, and replicated early Native American speleology. Nels Nelson, the foundational archaeologist who developed the concept of excavating in levels, identified late Pleistocene megafauna at the Historic Entrance.	Youth, Families, Traditionally Underserved Audiences	Roves, Special Events, Community Outreach, Park Website, App	<ul style="list-style-type: none"> ▪ Kurt Helf ▪ Art and Peg Palmer ▪ William and Elizabeth White ▪ Daryl Grainger ▪ E.A. Martel ▪ Chris Groves ▪ Patti Jo Watson ▪ Nels Nelson 	<ul style="list-style-type: none"> ▪ Current and future ethnographies, historic structures reports, cultural landscape reports. <i>Slavery in Kentucky, Volumes 1 and 2, Ivan E. McDougle</i>

Theme: The uniquely beautiful landscape of Mammoth Cave National Park shelters an underground labyrinth unmatched in size and complexity.

Relevant Essential Questions

- What have we learned from the history of agriculture and speleology at Mammoth Cave that could help us reduce the impacts of climate change today?
- What is the value of water at Mammoth Cave?

Topics, Programs, and Story Concepts	Key Audiences	Method of Delivery	People Who Represent These Stories	Sources for Additional Research
<p>Karst System Education. Provide education on karst systems, the size and complexity of the system at Mammoth cave, and ongoing exploration in order to inspire the next generation of stewards and scientists.</p>	Youth	Cave Tours, Surface Tours, Environmental Ed, VC Exhibits	<ul style="list-style-type: none"> ▪ Native Americans who were the first explorers of Mammoth Cave and early speleologists. ▪ Stephen and Charlotte Bishop, Bransfords, and other guides and early explorers. ▪ Researchers and Scientists including those from Western Kentucky University (Dr. Chris Groves, Dr. Pat Kambesis, Dr. Art Palmer, Dr. Jason Polk, and Dr. Leslie North), Tom Byl (USGS-TSU), and others. 	<ul style="list-style-type: none"> ▪ Work with SRM office to provide training on geology and other natural sciences and processes for interpreters. Develop a quick guide to supplement training. Training and resource guide together should provide enough information for Guides to speak intelligently on geology for 2 hours. ▪ Current and future ethnographies, historic structures reports, cultural landscape reports, <i>Slavery in Kentucky, Volumes 1 and 2, Ivan E. McDougale</i>
<p>Recreational Context and Value of the Natural World. Provide interpretation on natural processes shaping Mammoth Cave and the importance of recreational stewardship in the context of popular recreational activities (horseback riding, paddling, fishing, hiking, camping, foraging) in order to inspire stewardship and foster deeper connections between recreators and park natural and cultural resources.</p>	Recreators, Youth, Locals	Roves, Special Events, Community Outreach, Park Website, App		

Theme: The karst landscape of Mammoth Cave National Park creates an exceptional opportunity for people to experience the ways water connects the surface, subsurface, and us.

Relevant Essential Questions

- What is the value of water at Mammoth Cave?
- Why should we care if rare and unusual animal species are extinguished?

Topics, Programs, and Story Concepts	Key Audiences	Method of Delivery	People Who Represent These Stories	Sources for Additional Research
Green River. Provide information on the history of livelihood, use, and transportation on the Green River from First People to today. Highlight the dam systems, shell mounds, and ferries.	n/a	Outdoor exhibits/ waysides	<ul style="list-style-type: none"> ▪ Denison family ▪ Adwell family ▪ Native Americans 	<ul style="list-style-type: none"> ▪ The Green River of Kentucky, Helen Bartter Crocker ▪ Collect oral history from Dave Spence and other guides who grew up along the river ▪ Filson Historical Site in Louisville archives and manuscripts ▪ US Army Corps of Engineers District Office at Louisville Kentucky Building ▪ Bowling Green Museum collections and archives
Nolin River. Talk about the dam and lock system and its connection to industry and trade, especially the natural asphalt mining company.	n/a	Outdoor exhibits/ waysides	n/a	n/a
Natural Resources. Provide interpretation on the river ecology of the surface and subsurface water ways in and around MACA. Highlight mussels, shell mounds, unique and endangered species, biodiversity, and the relationship between humans and water quality. Discuss Native American lifeways and sustainable agriculture and subsistence.	Youth, Families, Locals, Traditionally Underserved Audiences, People with Disabilities	Surface Tours, Indoor and Outdoor Exhibits, Dialogic Porch Talks	Native Americans	<ul style="list-style-type: none"> ▪ Monte McGregor (KyDFWR) ▪ Mike Compton (KyONP)

Theme: An incredibly diverse population of plants and animals, some found nowhere else in the world, are fighting for survival at Mammoth Cave National Park.

Relevant Essential Questions

- Why should we care if rare and unusual animal species are extinguished?

Topics, Programs, and Story Concepts	Key Audiences	Method of Delivery	People Who Represent These Stories	Sources for Additional Research
<p>Botany. Connect visitors to the many species of plants protected by MACA by talking about their traditional, medicinal, and subsistence uses. For Native people, this landscape was grocery store, pantry, and pharmacy. Also interpret invasives and other human impacts to plant communities.</p>	<p>People with Disabilities</p>	<p>Self-guided placards on an accessible nature trail for plant ID. Develop a botany primer and share it on web and app. Create a scavenger hunt to use at Heritage Trail, Sloan's Crossing, and Echo Trail.</p>	<p>Native Americans</p>	<ul style="list-style-type: none"> ▪ SRM Staff ▪ Steve Kistler ▪ CUPN Botany Department ▪ Wildflowers of Mammoth Cave, Randy Seymour
<p>Unique Animals and Ecosystems. Provide interpretation on the endemic, indigenous, and endangered animals found in the park, the ecosystems that support them, and human's role in preserving them.</p>	<p>Youth, Families, Locals, Traditionally Underserved Audiences, People with Disabilities</p>	<p>Surface Tours, Indoor and Outdoor Exhibits, Dialogic Porch Talks</p>	<p>n/a</p>	<p>n/a</p>

Theme: The history of human interaction with the land in and around Mammoth Cave is just as complex, and often just as mysterious, as the cavern itself.

Relevant Essential Questions

- How do concepts of ownership effect human relationships with the land and each other?
- How does economic privilege shape our society in the leisure and travel industry?

Topics, Programs, and Story Concepts	Key Audiences	Method of Delivery	People Who Represent These Stories	Sources for Additional Research
Leisure and Labor in the USA. Explore the industry of recreation and how it has changed over time. Look at photography, marketing, transportation, and the role of hospitality workers providing respite and refreshment for some at the expense of others. Discuss family and community dynamics during the cave wars.	Youth, Families, Locals, Traditionally Underserved Audiences	Update/establish exhibits near the VC and historic trains. Host monthly dialogic sessions on race and social justice using ACE or other dialogue techniques.	<ul style="list-style-type: none"> ▪ Jenny Lind ▪ McDaniel Family 	<ul style="list-style-type: none"> ▪ Green Book ▪ Historic Newspapers ▪ Advertisements ▪ Cultural Landscape Reports ▪ Historic Structure Reports ▪ Enthographies
Surface Stories. Discuss the communities from the past that were removed, and those that remain, at MACA. Explore the complexity of Civilian Conservation Corps (CCC) camps. What is their legacy/connection to modern trail crews? What was their significance during the Great Depression? How did they handle race and segregation? How were they connected to the communities they destroyed (revegetated)?	Youth, Locals, Traditionally Underserved Audiences	Expand surface tours and outdoor exhibits to show historic images of the land before the NPS. Consider installing story booths to collect oral history from locals/descendants.	<ul style="list-style-type: none"> ▪ Bransford family ▪ Norman Warnell ▪ Lewis Cutliff ▪ Lee family (Dan's descendants) ▪ Kevin Garvin ▪ Lisa Perry ▪ Archibald Miller descendants ▪ Mayor (R) Randall Curry 	<ul style="list-style-type: none"> ▪ Continue collecting oral histories, talking to local families ▪ Social Media for Norman Warnell, Lewis Cutliff and others ▪ Census and property records from around the time of the Civil War ▪ Cultural Landscape Reports ▪ Historic Structure Reports ▪ Enthographies ▪ Dr. Katie Algeo
Women of Mammoth Cave. Women make up (and have made up) appx. 51% of the population for all of human history, and Mammoth Cave is no different. Mammoth Cave has many interesting stories to tell of Native American women and their role in society (past and present), the role of domestic servants and women in the hospitality industry (enslaved and free) to support the leisure and recreation of others, and many notable female scientists and artists. Even when the specific names of women aren't known, the representative history of their lives and work should be shared. Approximately 51% of the stories and images we share in interpretive programs, exhibits, videos, and waysides, should be about women.	Youth, Families, Locals, Traditionally Underserved Audiences	Update interpretive tours, indoor and outdoor exhibits, AV media and publications to feature women's stories. Consider featuring the work of female photographers and establishing a digital archive where people can seek and tag their relatives.	<ul style="list-style-type: none"> ▪ Charlotte Bishop ▪ Rachel Wilson ▪ Jenny Lind ▪ Elizabeth Gatewood ▪ Sharron Ganci ▪ Donna Bullock ▪ Janet Bass Smith ▪ Frances Benjamin Johnston ▪ Becky (Beck) Wilson ▪ Lida Flenniken ▪ Women married in the Cave ▪ Diana Daunt (Coons, Miller, Aboyans) ▪ Hanna Bransford ▪ Joy Lyons ▪ Lillian McDaniel Cutliff ▪ Melissa English-Rias ▪ Etta Reed ▪ Lisa Perry 	<ul style="list-style-type: none"> ▪ Rachel Wilson interview and photos ▪ Sharon Ganci (living in Glasgow) ▪ Bob Thomson published articles in Journal of Speleontology Research on photographers in Mammoth Cave ▪ Mammoth Cave Papers in SRM library include history and archaeology ▪ <i>Making Their Mark: The Signature of Slavery at Mammoth Cave</i>, Joy Lyons ▪ Census and property records from around the time of the Civil War ▪ Cultural Landscape Reports ▪ Historic Structure Reports ▪ Enthographies

Theme: Mammoth Cave National Park tells the extraordinary story of enslaved African Americans and their descendants who discovered many of the cave’s most iconic features and whose entrepreneurial spirit shaped the social, political, and physical landscape of America.

Relevant Essential Questions

- How does economic privilege shape our society in the leisure and travel industry?
- How do concepts of ownership effect human relationships with the land and each other?
- How do we overcome the legacy of systemic racism and institutionalized slavery in America?

Topics, Programs, and Story Concepts	Key Audiences	Method of Delivery	People Who Represent These Stories	Sources for Additional Research
<p>Civil War and Pre-Civil War Era. Discuss the unique nature of seasonal work and leasing enslaved people in the Mammoth Cave area and how that effected community, home, and family life. Explore connections between Mammoth Cave and the Underground Railroad. Share stories about the Anti-Slavery Society and abolitionist activity in Kentucky. Partner with other area arks to tell a broader Kentucky story and point visitors to other NPS sites in the state.</p>	<p>Youth, Families, Traditionally Underserved Audiences, Reunion Groups</p>	<p>Update the human history portion of the VC exhibit. Establish the “Day on Flint Ridge” surface tour. Talk about how many African American guides used to work in the Cave and why they aren’t there now. Host monthly dialogic sessions on race and social justice using ACE or other dialogue techniques. Offer Ranger Talks at special events and gatherings (reunions, weddings, group trips, etc.) Incorporate African American history into virtual and in-classroom Environmental Ed Programs.</p>	<ul style="list-style-type: none"> ▪ Stephen and Charlotte Bishop ▪ Bransford Family – especially Mat and Hanna 	<ul style="list-style-type: none"> ▪ <i>Slavery in Kentucky, Volumes 1 and 2, Ivan E. McDougle</i> ▪ Census records and property records, work with local genealogists ▪ WPA Slave narratives (Library of Congress) ▪ Runaway Slave Ads ▪ NPS administrative records on segregation and desegregation at MACA and other parks (Shenandoah and Great Smokies)
<p>Post Civil War. For a time, Black tourism around the cave thrived. Flint Ridge and other communities around Mammoth Cave became an enclave of integration where work and community life were shared, but tension remained with community members being ostracized on both sides because of their race or relationships with members of another race and segregationist policies invaded certain institutions. When Mammoth Cave National Park was created as a destination for white, middle-class families, African Americans and poorer white families were disenfranchised from the park with many people losing their land and livelihood to eminent domain and black guides not hired for work with the NPS. This history corresponds to a steady decline in African American tourism and population in the area. Emphasize the entrepreneurial spirit of freed Africans as well as the negative effects of Reconstructionist policies and the history of the CCC camps.</p>			<ul style="list-style-type: none"> ▪ Bransford Family – especially Matt and Clifton ▪ Norman Warnell ▪ Lewis Cutliff ▪ The Lee Family (descended from Dan) ▪ Kevin Garvin ▪ Lisa Perry ▪ Randall Curry ▪ Alma Ford 	<ul style="list-style-type: none"> ▪ Dr. Katie Algeo (WKU) ▪ Current and future ethnographies and oral histories ▪ Historic Structures Reports ▪ Cultural Landscape Reports ▪ Social media sources for living representatives of this history ▪ NPS administrative records on segregation and desegregation at MACA and other parks (Shenandoah and Great Smokies) ▪ National Park Association records on the establishment of Mammoth Cave ▪ African American newspapers (See Readex African American collection and Chronicling America collection from Library of Congress) ▪ Clifton Bransford and Alma Ford interviews ▪ Schmitzer Thesis on CCC
<p>Civil Rights. 1960s desegregation in the park and surrounding communities.</p>			<ul style="list-style-type: none"> ▪ Ray “Rock” Henderson ▪ Joy Lyons ▪ Melissa English-Rias ▪ Etta Reed 	<p>Mammoth Cave Railroad v. Kentucky segregation lawsuit</p>
<p>The History of American Racism. Influence of the KKK, racialized terror in Kentucky, and the prevalence (or not) of lynchings in communities nearest the Cave.</p>			<ul style="list-style-type: none"> ▪ “Dish” Emerton ▪ Richard Spearman ▪ Gams Calls 	<ul style="list-style-type: none"> ▪ Newspapers (Black and White) will be great sources. ▪ Tuskegee University records of lynching and other racial violence ▪ Bowling Green Museum has excellent manuscripts and archives collections (see Brent Bjorkman) ▪ lynchinginamerica.eji.org

Theme: Mammoth Cave National Park is committed to the ongoing exploration of the park's history and its importance to the cultural identity of Native Americans who lived on lands in and around the park before being exploited, excluded, and forcibly removed.

Relevant Essential Questions

- What have we learned from the history of agriculture and speleology at Mammoth Cave that could help us reduce the impacts of climate change today?
- How do concepts of ownership effect human relationships with the land and each other?

Topics, Programs, and Story Concepts	Key Audiences	Method of Delivery	People Who Represent These Stories	Sources for Additional Research
<p>Pre-contact. Provide education on the many scientific advances pioneered by Native Americans in and around MACA including advances in speleology, agriculture, and subsistence living. Compare Native American methods to those of today's Euro-American farmers. What could be learned about sustainable living and combatting climate change? Work with other partners in Kentucky to bust the myth of no-man's land pre-contact. Highlight the presence and significance of trails, cities, and trade routes in and near the park.</p>	Youth, Families, Locals, Traditionally Underserved Audiences	Create New Outdoor Exhibits for Surface and Subsurface, Update VC Exhibit, Expand Native American History discussed during Surface and Subsurface Tours, Incorporate in Special Programs such as Porch Talks, Campfire/Evening Programs, and Dark Sky Programs. Work with affiliated tribes to create new comprehensive ethnography and public facing guide to interpretation.	Work with affiliated Tribes to identify specific heroes, leaders, or people of interest when possible, share representative history when not.	<ul style="list-style-type: none"> ▪ Jan Simek (UT-K prof) ▪ Darlene Applegate (WKU) ▪ Future ethnography/study with affiliated Native American tribes. Specify which stories to tell, which ones not to.
<p>Post-contact. What happened to the first inhabitants of the Mammoth Cave Area? How did European colonization, Manifest Destiny, and westward expansion kill or displace Native people? Connect to modern Native Americans living in the area or affiliated with the park. Talk about migration from CCC camps as well as forced displacement. Highlight modern heroes of the park's affiliated tribes (artists, politicians, scholars etc.) Surface stories of Native Americans.</p>			<ul style="list-style-type: none"> ▪ CCC workers ▪ Work with affiliated tribes to identify modern and historic scientists, artists, politicians, and other people of note. 	<ul style="list-style-type: none"> ▪ SRM Staff ▪ Tribal Consultation ▪ John Nelson collection ▪ Kentucky Native American Heritage Commission/Council
<p>Native American Graves Protection and Repatriation Act (NAGPRA). Discuss the importance of NAGPRA and MACA's participation in it. Discuss the evolution of museums and the ethics of displaying human remains as curiosities (Native American, Floyd Collins, Egyptian). Time is insignificant when we talk about death and the significance of human life. The practice of honoring our dead in rituals separates us from animals.</p>		Connect the stories of desecrated burials to Floyd Collins story in Crystal Cave Tour.	<ul style="list-style-type: none"> ▪ Floyd Collins and Edmund Turner interactions with Native American artifacts ▪ People whose burial sites were disturbed and bodies desecrated through exhibition. What name should they be called by? 	<ul style="list-style-type: none"> ▪ Kentucky Archaeological Survey ▪ Kentucky SHPO

Implementation Toolkit

A digital implementation toolkit is provided to the park along with this plan. The toolkit includes:

- An extensive data package used to develop this plan with information on current visitor trends, market data on likely visitors, economic impact data, current operations, community demographics and more. This database is provided as a data package in the implementation toolkit.
- Training packages for ACE Facilitated Dialogue, Theme Development, and Resume Workshops.
- Access to Making a Difference Through Interpretation Training materials.
- Harpers Ferry Center's Accessibility Checklist for exhibit design.
- Wayside Inventory and Content Analysis Template.
- Diversity in Media Guidelines.
- A complete list of draft recommendations (including those that were not prioritized for implementation during this planning cycle).
- Official correspondence and meeting notes.
- Copies of complimentary plans consulted during this planning process.
- Funding Sources and Timelines Quickguide.



Methodology



This plan was developed by the Interpretation, Education, Volunteers, and Partnerships staff of Interior Region 2 (Southeast Region). The planning process consisted of planning workshops and meetings which were conducted in six phases over a nine-month period. Phase 1 was conducted in-person, all other phases were conducted remotely using digital meeting platforms. The park's affiliated Native American tribes were consulted during two phases of the planning process (Phase 1 and Phase 5). Other stakeholders were consulted during Phase 1. Records from consultation were provided in the implementation toolkit. Management representatives from all divisions of the park were included in the planning process, as were park interpretive staff (field, supervisory, and management) and regional staff. An extensive database was compiled and used to develop this report including statistics on visitation, tourism trends, volunteer data, economic benefits, reports on interpretation use and satisfaction, and market research including area demographics, community profiles, and consumer preferences. This database was provided to the park as part of its implementation toolkit. Together, the Long-Range Interpretive Plan, Implementation Plan, and Database fulfill the requirements of a Comprehensive Interpretive Plan as defined in Director's Order #6.

Acknowledgements

The following people contributed to this plan:

Stakeholders

- Brittanie Cleveland – Barren County School System
- Deryck Rodgers – Natural Resources Dept. Head, Army Corps of Engineers, Nolin River Lake
- Bobby Bennett – Cave City Tourism and former Concession Manager
- Don Bransford – Descendant of Bransford Family
- Jerry Bransford – Descendant of Bransford Family
- Greg Davis – Cave City Tourism Commission and Convention Center
- Rick DuBose – Executive Director, Friends of Mammoth Cave
- David Kime – Northern Kentucky University
- Aimee Meadows – Eastern National
- Elizabeth Toombs – Tribal Historic preservation Officer, Cherokee Nation
- Kate Webb – Head of Research, Western Kentucky University
- Sandra Wilson – Hart County Tourism

Park Staff

- Chelsea Ballard – Park Guide
- Chuck DeCroix – Supervisory Park Ranger
- Tommy Digiovannangelo – Park Guide
- Jay Grass – Deputy Superintendent
- Shannon Hurley – Park Guide
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- Kathy Proffitt – Operations Manager
- Kennetha Sanders – Park Guide
- Molly Schroer – Management Analyst
- Jennifer Shackelford – Environmental Education Manager
- Tegan Sorensen – Park Guide
- Rick Toomey – Cave Resource Specialist
- Barclay Trimble – Superintendent
- Heather Walker – Budget Analyst
- Jackie Wheet – Park Guide
- Ruth Wilson – Fees Manager
- Brian Wollenburg – Chief of Law Enforcement
- Dave Wyrick – Chief of Interpretation and Visitor Services

Regional Office

- Christiana Admiral – Chief of Interpretation, Education, and Community Partnerships
- Amanda Griffis – Cultural Anthropologist
- Amanda Hammond – Interpretive Planner
- Stephanie Metzler – Exhibits and Publications Specialist
- Melissa English-Rias – Interpretive Specialist
- Deanda Johnson – Civil Rights Historian

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