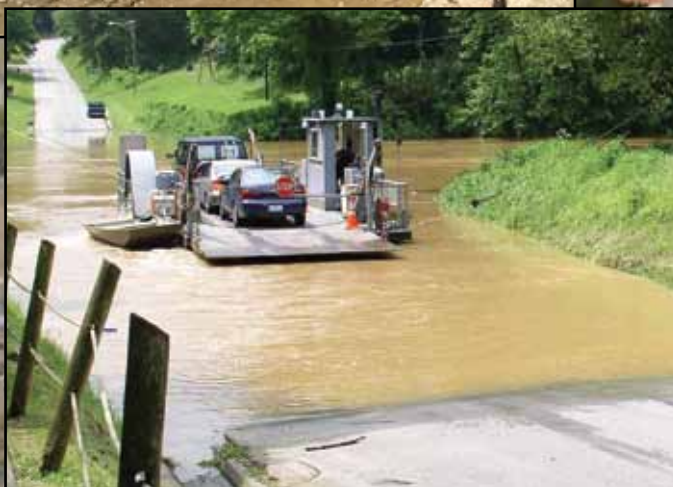




Finding of No Significant Impact (FONSI)

Green River Ferry Improvement Project
Mammoth Cave National Park, Kentucky
November 2011





IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE

Southeast Regional Office

Atlanta Federal Center

1924 Building

100 Alabama St., S.W.

Atlanta, Georgia 30303




SER-PC

NOV 10 2011

Memorandum

To: Superintendent, Mammoth Cave National Park

From: Regional Director, Southeast Region 

Subject: Finding of No Significant Impact (FONSI) and Statement of Findings (SOF) for the Rehabilitate Green River Crossing Project, Mammoth Cave National Park

Attached please find the signed FONSI and SOF for Floodplains for the subject project.

If you require further assistance or information, please contact Jami Hammond, Planning and Compliance Division, at 404-313-6349.

Attachment



FINDING OF NO SIGNIFICANT IMPACT

**REHABILITATE GREEN RIVER CROSSING
MAMMOTH CAVE NATIONAL PARK**

October 27, 2011

Based on the following summary of effects, as discussed in the attached environmental assessment (EA), it has been determined that the selected alternative would not have a significant impact on the human environment. Environmental impacts that could occur are limited in context and intensity, with impacts that range from localized to widespread, short- to long-term, and negligible to moderate. There are no unmitigated adverse effects on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the selected alternative will not violate any federal, state, or local environmental protection law. Therefore, an environmental impact statement (EIS) is not required.

Recommended by:

A handwritten signature in black ink, appearing to read "Patrick H. Reed".

Patrick Reed, Superintendent
Mammoth Cave National Park

Date: 10/25/2011

Approved by:

A handwritten signature in black ink, appearing to read "David Vela".

David Vela, Regional Director
Southeast Region, National Park Service

Date:

11-10-11

FINDING OF NO SIGNIFICANT IMPACT

REHABILITATE GREEN RIVER CROSSING MAMMOTH CAVE NATIONAL PARK

INTRODUCTION

This finding of no significant impact (FONSI) and the Rehabilitate Green River Crossing Environmental Assessment/Assessment of Effect (EA/AoE) constitute the record of the environmental impact analysis and decision-making process for the Mammoth Cave National Park (the park) project. The National Park Service (NPS) will implement the selected alternative (Alternative B: Ferry Rehabilitation with Upstream Canoe Ramp [No Dredging]), which includes ferry rehabilitation with the addition of an upstream canoe ramp, as well as operational and general infrastructure improvements. Implementation of the selected alternative will provide a consistent, comprehensive, and adaptive approach to rehabilitating the Green River crossing that will reduce closure of the ferry due to low water conditions, improve recreational access at the Green River crossing, and maintain safety, while protecting, to the maximum extent possible, the park's significant historical and natural resources. This alternative will also include lengthened hours of ferry operation, pending available funding.

The Green River crossing is the most direct travel route for citizens in the rural area north of the park to reach areas south of the park. It also is the most readily accessible way to cross the river for park visitors and staff. More than 96,000 vehicles were transported across the Green River by the ferry in 2009. Under its current configuration, ferry service is interrupted during periods of low water, high water, and miscellaneous weather and maintenance events. When the ferry was relocated to its present site in 1934, its configuration was based on the pool level behind the United States Army Corps of Engineers' (USACE) Lock and Dam 6 (LD6). Located approximately 0.5 miles downstream of the park boundary and 16 miles downstream of the ferry, LD6 has not been used since 1951 and has fallen into disrepair. Due to its deteriorating condition, LD6 has been approved by the USACE for decommissioning and removal, although there are no plans to do so in the immediate future. The deteriorating condition of LD6 has also caused a gradual lowering of water behind the structure, especially in the drier summer months. When LD6 fails or is removed, the pool level at the Green River Ferry could drop by as much as 3 feet. According to park statistics, low water conditions have caused as many as 32 days of closures in one year (the highest recorded number of closures to date). When LD6 fails or is removed, extended periods of low water could lead to extended periods of closures.

SELECTED ALTERNATIVE

Based on the analysis presented in the EA/AoE, the NPS has selected Alternative B: Ferry Rehabilitation with Upstream Canoe Ramp (No Dredging) as the selected alternative. This alternative consists of the rehabilitation of the ferry, along with the addition of an upstream canoe ramp and operational and infrastructure improvements. This alternative will include minimal dredging, limited to what is required for construction of the new ferry ramps.

The purpose of the rehabilitation of the Green River crossing is to improve the safety, reliability, and availability of the Green River crossing in an environmentally sensitive and fiscally responsible manner. Therefore, although the impacts on the natural and cultural resources under the selected alternative (Alternative B) are greater than those under Alternative A (the no-action and environmentally preferred alternative), Alternative B will meet the purpose and need of the project. Moreover, Alternative B will meet the purpose and need of the project more economically while imposing a lesser impact on natural and cultural resources than Alternative C. Therefore, Alternative B is identified as the NPS selected alternative.

FERRY OPERATION AND INFRASTRUCTURE IMPROVEMENTS

The NPS will increase hours of operation for the ferry from 16 hours/day to 20 hours/day (5 a.m. to 1 a.m.) for 364 days/year, pending the availability of funding. The NPS also will regrade the approach roads to provide a consistent slope (approximately 12 percent) to lowered concrete aprons that serve as ferry ramps to allow operation of the ferry to continue at lower water levels than is currently possible. Installation of the lowered ferry ramps would require the dredging of approximately 63 cubic yards, which will require a permit from the US Army Corps of Engineers (USACE) prior to construction. During periods of low water or high water conditions, the ferry will continue to close for safety and operational reasons. The hand-placed stone retaining walls will be removed and rebuilt as needed for continued bank stabilization. Existing site lighting may need to be removed during road regrading, however, it would be replaced and related infrastructure will be improved, where opportunities exist. Uniform grades will be established for the asphalt-paved approaches on both sides of the Green River. These actions will reduce (and ideally eliminate) ferry closures related to low water; however, this is ultimately dependent on river conditions.

Direct costs for ferry operations, fuel, and maintenance will be approximately an additional \$79,000 per year. Therefore, estimated FY 2012 direct costs are approximately \$296,500. Indirect costs will increase by approximately \$1,000 for a total of approximately \$4,000. Total FY 2012 cost of operating the Green River Ferry 20 hours a day 364 days per year is approximately \$300,500. Over the 40-year life of this

alternative, all components (including ferry operations) are estimated to cost approximately \$6.0 million.

The NPS will continue existing efforts to communicate the ferry's status to the public and the park will add "smart" signs inside and outside the park in the future. The site will continue to be utilized by recreational watercraft users as an access point to the Green River, and the park will continue to issue Commercial Use Authorizations (CUA) to canoe liveries.

PARKING LOT IMPROVEMENTS

The NPS will improve the existing parking lots. The parking lot on the south side will be expanded to the east and redesigned to provide spaces for 36 standard vehicles, two RVs, and four vehicles with trailers, expanding the parking lot in total to 9,300 square feet (0.21 acres). The road will be widened to include a turning lane into the parking lot on the south side of the river, and the overflow trailer parking along the south bank approach road will be paved to provide formal parking for two to three vehicles with trailers. The new canoe launch area will include an area to drop-off and pick-up canoes and other equipment in order to improve traffic flow and safety. A scenic overlook will be constructed off the corner of the southern parking lot to allow visitors to safely observe the river and ferry, designed to comply with the Americans with Disabilities Act of 1990 (ADA). On the north side, the lot will be paved and marked, will provide parking for 4 to 6 vehicles (without trailers), and will provide an area in which vehicles with or without trailers can turn around. To provide these amenities, the parking lot will be paved on an area slightly larger than the existing footprint, resulting in an area approximately 4,000 square feet (0.9 acres) in size.

CANOE RAMP IMPROVEMENTS

The NPS will construct a canoe ramp off the southern parking lot, upstream of the ferry. This ramp will be approximately 8 feet wide and will be located off the northwest corner of the parking lot, more than 100 feet upstream of the ferry crossing. The ramp will provide a switch-back pathway to keep the grade at approximately 10%, accompanied by stairs for steeper but more direct access to the river. The new canoe launch ramp will include an area to drop-off and pick-up canoes and other equipment in order to improve traffic flow and safety. In addition, no dredging will take place to maintain depth along the ferry crossing.

ECHO RIVER SPRING TRAIL IMPROVEMENTS

The NPS will improve the Echo River Spring Trail with the addition of a new segment of trail added to connect the Green River Ferry parking lot to the portion of the trail on the opposite side of the Echo River Spring Outlet. This 300-foot long connection will also include a pedestrian bridge constructed over the Echo River Spring Outlet, creating a loop hike from the parking lot, to the Echo River Spring, back around and over the Echo

River Spring Outlet, and ending back at the parking lot. The existing Echo River Spring Trail from the Green River Ferry parking lot to the Echo River Spring overlook will provide a raised boardwalk leading to a new overlook at Echo River Spring. The overlook will provide steps down to the spring, and the remaining segment of existing trail and the new segment completing the overlook will make up a hardened surface at the existing grade on the north side of the Echo Spring Outlet, complying with ADA.

MITIGATION

Where feasible, the NPS will implement mitigation measures to minimize environmental impacts related to the selected alternative. Although the exact mitigation measures to be implemented would depend upon the final design, approval of plans by relevant agencies, and available funding, the following is a list of actions that are likely to take place:

- Action will be conducted so as to avoid degrading water quality to the maximum extent practicable. Measures will be employed to prevent or control spills of fuels, lubricants, or other contaminants from entering the waterways. Actions will be consistent with state water quality standards and Clean Water Act Section 401 certification requirements.
- Appropriate erosion and siltation controls will be maintained during construction, and all exposed soil or fill material will be permanently stabilized at the earliest practicable date. To this end, erosion control devices such as silt fences will be utilized to minimize impacts. Use of coffer dams will reduce increases in sedimentation downstream in the Green River during ferry ramp reconstruction.
- Construction of new structures within the floodplain will be designed in such a way as to withstand 100-year flood events and to cause minimal impediment of flood waters.
- Stockpile materials will be placed in the existing parking lots to avoid impacting any natural features. Control devices will be placed down-gradient of each area to contain any potential spills or sediment run-off.
- Where plantings or seeding are required, native plant material will be obtained and used in accordance with NPS policies and guidance. Management techniques will be implemented to foster rapid development of target native plant communities and to eliminate invasion by exotic or other undesirable species.
- Construction equipment will be restricted to the road corridor and parking lots as much as possible to avoid impacts on natural resources.
- To comply with Section 106 of the National Historic Preservation Act (16 U.S.C. 470 et seq.), the NPS negotiated a memorandum of agreement (MOA) with the Kentucky State Historic Preservation Officer (SHPO). The MOA records the terms and conditions agreed upon to mitigate adverse effects to cultural resources (archeological resources, historic structures, and the cultural landscape) associated with rehabilitation of the Green River ferry. The signed MOA is attachment C to this FONSI.

- Temporary advanced warning signs will be installed to warn of site closure during construction, and the park will provide extended hours at Houchin Ferry as an alternate transportation route across the Green River during construction.

OTHER ALTERNATIVES CONSIDERED

The EA/AoE analyzed three alternatives in detail: the no-action alternative and two action alternatives, including the NPS selected alternative. In addition, several alternatives were considered, but eliminated from further evaluation in the EA/AoE.

No-ACTION, ALTERNATIVE A

Alternative A, the no-action alternative, would maintain existing ferry operations under the same conditions and using the same currently existing infrastructure. A few improvements would take place in accordance with normal park management (e.g., improved signage). The ferry would continue to operate from 6 a.m. to 10 p.m., providing 16 hours of operation every day of the year except Christmas. The ferry would continue to be closed during periods of low water levels that make the river too shallow for safe operation. The historic retaining walls would remain in place and be maintained on an as-needed basis. Visitors wishing to watch the Green River Ferry in action, fish, or simply observe the river would continue to make social trails along the banks. Any changes to the ferry approach roads would be related to maintenance activities on an as-needed basis and would take place as time and funding becomes available. Approaches along Green River Ferry Road would remain at their current grading. The ferry ramps would continue to serve as a watercraft ramp for recreational visitors and park staff. In addition, the Echo River Spring Trail would remain unpaved and would offer limited access to those visitors with physical disabilities. It is estimated that it would cost approximately \$222,000 per year in fiscal year (FY) 2010 dollars to maintain operation of the Green River Ferry in its current configuration. Over the 40-year life of this alternative, all components (including ferry operations) are estimated to cost approximately \$3.9 million.

FERRY REHABILITATION WITH DOWNSTREAM ADJACENT WATERCRAFT RAMP (DREDGING), ALTERNATIVE C

In addition to lowering and regrading the ferry approach roads and ramps, this action alternative would widen the approach road on the south side of the river to provide a boat ramp approximately 15 feet downstream of the ferry. Dredging would take place approximately one time a year to maintain the ferry crossing, and ferry operations would be suspended during dredging. During dredging, up to 4,000 cubic yards of sediment would be removed from the river bottom. This material would then be dewatered by approved methods and disposed of offsite. Uniform grades would be established for the asphalt-paved approaches on both sides of the Green River, with the road terminating at a concrete apron, as it currently does. These changes would allow the ferry to operate at a water height down to this level, depending on riverbed

conditions. Rather than providing a separate canoe ramp of the parking lot, this alternative would provide a separate lane for launching canoes and boats on the south side of the river. This ramp would be separated from the ferry approach road by a small concrete barrier and would provide a space approximately 15 feet wide in which watercraft could be launched. Direct costs for ferry operations, fuel, and maintenance would be approximately \$79,000 additional per year. Therefore, estimated FY 2012 direct costs are approximately \$296,500. Indirect costs would increase by approximately \$1,000 for a total of approximately \$4,000. Total FY 2012 cost of operating the Green River Ferry 20 hours a day 364 days per year is approximately \$300,500. Over the 40-year life of this alternative, all components (including ferry operations) are estimated to cost approximately \$7.2 million.

ALTERNATIVES CONSIDERED BUT DISMISSED FROM FURTHER ANALYSIS

New Parking Lots with Watercraft Ramps at the Green River Ferry. The planning team considered placing new parking lots with associated watercraft ramps at the site, either to the north across the Echo River Spring Outlet from the existing parking lot on the south bank or in an area off the existing north bank parking lot downstream of the ferry. Archeological sites were discovered during the Phase I archeological survey of the project area. Since the Miss Green River II concession boat ride is no longer in operation, there is no longer a need for increasing the number of parking spaces at the crossing. Development of these sites would be likely to cause major impacts on archeological resources. The diminished need for parking spaces and the potential to cause widespread adverse impacts on previously undisturbed archeological resources made this alternative inconsistent with the purpose of this project.

High-Level Bridge. A high-level bridge alternative would require the construction of a bridge that would accommodate a 100-year flood event, requiring the removal of the Green River Ferry. This bridge would allow the crossing of the Green River to be open to the public year round, 24 hours per day, 7 days per week, as water levels would not affect its usage. The Green River Ferry Road on both sides of the river would need to be realigned to match the bridge alignment, and new access roads would be required to reach the former ferry landings and parking area. The environmental impacts related to this alternative would be extensive. Construction of the bridge and the reconstruction of the connected roadways would have a large footprint. A wide swath of vegetation would be removed, which also would result in removal of wildlife habitat. In some cases, this could result in reduced habitat for federally threatened and endangered species. Soils would be disturbed, especially in those areas that would require extensive grading. Rock excavation would be required for the construction of the new approach roads to the bridge and the new access roads to the existing ferry landings. Bridge support structures and abutments would be needed which would also require rock excavation. Support structures would need to reach great depths to provide the necessary support. There are numerous known and potentially unknown caves, karst features, and other geological resources in close proximity to where these structures would be constructed that would be impacted. In addition, estimates suggest that a high-level bridge would

cost \$50 million dollars. The high costs to build and maintain the bridge and extensive potential impacts on natural and cultural resources made this alternative inconsistent with the purpose of this project.

Low-Level Bridge. This bridge alternative does not meet Federal Highway Administration (FHWA) standards, and further study of this alternative indicated that it would not significantly reduce closures; however, it was considered due to high public interest. The construction of this structure would require the removal of the Green River Ferry. Due to structural concerns caused by hydrodynamics of the river during high-water events, low-level bridge designs would be closed more frequently for high water than the ferry. Following high-water events, the low-level bridge would be closed until it was inspected for damage and any necessary repairs completed. Emergency access ramps would need to be constructed upstream and downstream of the bridge on both banks of the river, necessary because the low-level bridge would act as a barrier to emergency boat traffic during times of high water. The environmental impacts would not be as great at the high-level structure but would still be extensive. The hydrologic pressure and potential damage inflicted upon this low-level bridge would be intense and it would therefore require additional maintenance. During high-water events this bridge would become a hazard to watercraft preventing passage of vessels, including emergency responders.

The NPS had concept design work performed on this alternative and sent additional scoping letters to several agencies, due to the high level of public support for this option. This alternative is estimated at a cost of \$12.2 million to construct this structure, not including maintenance costs. Like the high bridge option, the low-level bridge would provide a reliable crossing of the Green River during periods of low water; however, it would still result in closures during periods of high water. Given the sensitive ecologic nature of the Green River at this crossing and the significant cost of the low-level bridge, the Eastern Federal Lands Highway Division (EFLHD) stated that they do not believe this alternative is a wise expenditure of federal funds, and that there are no conditions under which they would recommend the design and construction of a low-level bridge alternative at the Green River Crossing site. The high costs to build and maintain the bridge, inability to meet FHWA standards, ecological sensitivity of the Green River, and an insignificant decrease in closures made this alternative inconsistent with the purpose of this project.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

Although the NPS selected alternative is often the same as the environmentally preferred alternative, this is not always the case. When the purpose of the selected alternative is focused on providing improved services, the NPS must balance necessary impacts to the natural and cultural environment against the desired improvements. As mentioned earlier, Alternative B is identified as the NPS selected alternative over Alternative A, which is identified below as the environmentally preferred alternative.

The environmentally preferred alternative is defined by the CEQ as “the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act [Section 101 (b)].” Section 101 (b) goes on to define the environmentally preferred alternative through the application of six criteria listed below. Generally, these criteria define the environmentally preferred alternative as the alternative that causes the least damage to the biological and physical environment and that best protects, preserves, and enhances historic, cultural, and natural resources. Each criterion is presented below, followed by a discussion of how well the alternatives meet each one.

1. ***Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.*** The goal of the NPS at all units is to serve as trustees of the environment for future generations. Under the No-action Alternative, the NPS would not improve the Green River crossing. The ferry operations would remain unchanged, and the site would remain in its current configuration. Alternatives B and C would enhance the park’s ability to meet this criterion by upgrading inefficient infrastructure. While both action alternatives would provide improvements, Alternative C would do so at the expense of disturbance of the river bed by annual dredging activities.
2. ***Ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.*** Under the No-action Alternative, the park would strive to provide safe, healthful, productive, and aesthetically pleasing surroundings for its visitors. However, the study area would remain inaccessible for some visitors, and the shared use of the ferry ramps by recreational watercraft users would continue. Alternatives B and C would take steps to improve the safety and accessibility of the study area. Both action alternatives would provide overlooks for the Green River and Echo River Spring, which would allow visitors to safely enjoy the aesthetic and cultural elements of the site. Creation of a fully accessible loop trail along the Echo River Spring Trail also would take place under both alternative (including a new trail segment over the Echo River Spring Outlet to create the loop) also would take place under both action alternatives. Although some separation of recreational watercraft use would take place under both action alternatives, Alternative B will provide the greatest separation of uses with the upstream canoe ramp; however, the boat ramp would remain on the ferry ramp. Under Alternative C, the watercraft ramp would be adjacent to the ferry ramp. Canoes coming downstream would cross the ferry path to reach the take-out point.
3. ***Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.*** Mammoth Cave National Park currently provides a number of uses beyond transportation across the river. These uses include cave tours, hiking, horseback riding, bicycling, canoeing, boating, fishing, wildlife viewing, picnicking, and otherwise enjoying the landscape. While the No- action Alternative would continue to provide these uses, Alternatives B and C would

improve the park's ability to meet this criterion. By improving the operational efficiency of the ferry operations and completing the identified site improvements visitors would have increased recreational opportunities and safer amenities. Improving the accessibility of the Echo River Spring Trail would make the site available to a wider range of visitors.

4. ***Preserve important historical, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.*** The Green River Ferry has been in operation at this location in Mammoth Cave National Park since 1934. Under all of the alternatives considered and brought forward for analysis in the EA, the park would maintain this historic use and cultural setting. Under the action alternatives, improvements to the Echo River Spring Trail would offer a new connector over the Echo Spring River back to the parking lot for a short loop hike. This would provide a greater variety of choices within the study area. Under the action alternatives, improvements would require that the historic retaining walls at the ferry landing be removed and replaced; however, this impact will be mitigated through implementation of the MOA with the SHPO. Similarly, any impacts to archeological resources related to implementing this project will be mitigated to the extent possible through implementation of the MOA.
5. ***Achieve a balance between population and resource use that will permit high standards of living and wide sharing of life's amenities.*** The NPS strives to achieve a balance between population and resource use at Mammoth Cave National Park. Under the No-action Alternative, the park would continue to meet this criterion; however, without any improvements, some visitors would continue to cause minor resource impacts by straying off of formalized trails. Both action alternatives would meet this criterion by improving operation of the Green River Ferry, separating conflicting uses of the site, and providing an accessible loop around the Echo River Spring. Most impacts on the resources associated with these improvements would be relatively small; however, under Alternative C, there would be noticeable impacts on the river bed during dredging activities.
6. ***Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.*** This criterion does not apply to this project.

PUBLIC INVOLVEMENT AND AGENCY CONSULTATION

A summary of public concerns and the NPS responses are contained in Attachment D to this FONSI, and where necessary, errata to the EA/AoE are included in Attachment E.

PUBLIC INVOLVEMENT

As described in the EA/AoE, on April 13 and 14, 2009, the NPS hosted two open house public scoping meetings at the Edmonson County Public Library and the Lincoln Firehouse, respectively. During the meetings, the NPS introduced potential concepts for improving the Green River crossing and solicited input from the public. Following the public scoping meetings, the NPS held a 30-day public scoping comment period to solicit input on the selected alternative. The public comment period ended May 14, 2009. Because of the strong public support for a low-level bridge alternative, the NPS made a concerted effort to provide additional evaluation of this alternative. A consultant developed a design concept. Subsequently, the NPS undertook additional consultation with relevant agencies regarding the possibility for successfully implementing that alternative. Letters were sent to the FHWA EFLHD, FHWA Kentucky Division, Kentucky Division of Water, SHPO, Kentucky Department of Transportation, U. S. Coast Guard (USCG), and USACE. The park also held an additional public meeting on October 29, 2009 during a public comment period between October 12, 2009 and November 13, 2009. The purpose of this public involvement was to gain public input on ferry hours of operation.

The final open house public meetings were held at the Edmonson County Public Library and the Lincoln Firehouse on February 28 and March 1, 2011, respectively. During the meetings, the NPS provided a forum for the public to examine alternatives from the EA/AoE, the selected alternative, and alternatives dismissed. Large display boards depicted the alternatives and park staff members were present to discuss comments and answer questions in regards to the EA/AoE document. A public review period of the draft EA/AoE was held from February 18, 2011 to March 18, 2011. During that time, the park received seven pieces of correspondence from the public, posted on the NPS Planning, Environment, and Public Communication (PEPC) website, as well as via e-mail, hard copy mail, and forms dropped off at the park. Most comments were from residents of the area still requesting a low bridge option. Other comments requested more action items to improve the ferry crossing that are outside the scope of the document.

AGENCY CONSULTATION

In late 2005, the NPS opened discussions with the SHPO, USACE, and U.S. Fish and Wildlife Service (USFWS) about the proposed project. The NPS also informed other local governments and regulatory agencies about the project. The NPS reestablished communication with these groups and others in April 2009 when the EA/AoE process was resumed.

The park sent letters to representatives of the seven tribes who may be interested in the project. These tribes include the Shawnee Tribe, the United Keetoowah Band of Cherokee Indians, the Eastern Band of Cherokee Indians, the Eastern Shawnee Tribe of Oklahoma, the Chickasaw Nation, the Cherokee Nation, and the Absentee-Shawnee Tribe of Indians of Oklahoma. The letters were sent out by the park on June 12, 2009.

The park received a response from the Absentee-Shawnee Tribe of Oklahoma (September 30, 2009), stating that the selected alternative is not likely to impact any cultural properties affiliated to this tribe and reiterating that the tribe should be notified in the case that human remains are discovered. The Shawnee Tribe's Historic Preservation Department concurred that there were no known historic properties that would be negatively impacted by the selected alternative, and the United Keetoowah Band of Cherokee Indians had no objection to the selected alternative. The park will continue to coordinate with them as the project moves forward.

The park also received a total of 6 comments from government agencies and organizations during the public review period of the draft EA/AoE document. The Advisory Council on Historic Preservation declined participation. The USACE commented that the selected alternative will require a permit if it includes the discharge of dredged or fill material into the Green River. The Edmonson County Tourist & Convention Commission replied in support of a bridge option. The Kentucky State Clearinghouse indicates that there are no identifiable conflicts with any state goal, plan, or objective. USFWS concurred with the park's finding that the project is not likely to affect any federally threatened or endangered species in a letter dated April 4, 2011. The SHPO indicated that the project will have an adverse effect on historic properties. The NPS developed a MOA with the SHPO (the executed version is included in Attachment C) which identified the appropriate mitigation strategies for the cultural resources potentially impacted by the selected alternative. Consultation with the SHPO will continue based on the executed MOA.

WHY THE SELECTED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT

As defined in 40 CFR § 1508.27, significance is determined by examining the following criteria:

Impacts that may be both beneficial and adverse. A significant effect may exist even if the agency believes that on balance the effect will be beneficial. The selected alternative will not result in major or significant impacts that will require analysis in an EIS. As described in the EA/AoE, the selected alternative will have short-term, moderate, adverse impacts on soils and topography related to construction since these impacts will be readily apparent and since mitigation measures (likely to be successful) will be required to offset adverse impacts. The selected alternative will have long-term, minor, adverse impacts on soils and topography related to an increase in impervious surface covering soils and additional compaction of soils that may require some basic stormwater mitigation. The selected alternative also will have long-term, beneficial impacts on soils and topography because of the reduction of erosion caused by visitor foot traffic.

The selected alternative will result in short-term, moderate, adverse impacts on water resources because sedimentation during construction will be detectable but will be kept below water quality standards. The selected alternative also will result in long-term

negligible, adverse impacts on water resources following construction, since any pollutants from the runoff from increase impervious surface is likely to be below levels of detection and within historical water quality conditions. Finally, the selected alternative will have long-term, beneficial impacts on water resources related to reduced sedimentation associated with erosion specifically around the Echo River Spring Trail.

Impacts on floodplains will be long-term, minor, and adverse because there will be minimal alteration in the input of water during storm events and minimal localized impedance of flow through the project area.

The impacts on wildlife and wildlife habitat will be short-term, minor, adverse and long-term, minor, adverse because impacts related to removal of habitat due to construction activities will be detectable but outside the natural range of variability for wildlife or wildlife habitat. The selected alternative will have short-term, negligible to minor, adverse impacts on federally listed threatened and endangered species during construction and long-term, negligible to minor, adverse impacts on federally listed threatened and endangered species because of the small amount of terrestrial clearing.

Impacts on historic structures will include long-term, moderate, adverse impacts because alteration of the walls may diminish the overall integrity of the resource. The impacts on cultural landscapes will be long-term, minor to moderate, adverse because alteration at the site may diminish the overall integrity of the resource, and the impacts on archeological resources will be long-term, minor to moderate, adverse because of the potential for disturbance of sites resulting in a loss of integrity.

There will be short-term, moderate, adverse impacts on visitor use and experience during construction because the closure of the site will be temporary, and there will be long-term beneficial impacts on the visitor use and experience related to the separation of uses, improved safety, and improved accessibility.

Long-term, beneficial impacts on public safety will occur because the ferry will experience an increase in availability for emergency services and the approach roads will be rehabilitated.

The selected alternative will result in short-term, moderate, adverse impacts on transportation and site access due to construction-related closures and a change in transportation patterns. The selected alternative also will result in long-term, beneficial impacts to transportation and site access from an increase in ferry operation hours, the construction of a separate canoe ramp, and improved overall access to the site.

Lastly, short-term, moderate, adverse impacts on operations and infrastructure from interruption of ferry service during construction and long-term, beneficial impacts will take place on operations and infrastructure from improved ferry operations, parking, and recreational facilities.

The degree to which public health and safety are affected. As described in the EA/AoE, the NPS will add a canoe ramp more than 100 feet upstream of the ferry crossing to increase safety by separating the recreation and transportation uses at the site. In addition, the NPS will add formal overlooks for the Green River and the Echo River Spring, which will improve safety by reducing visitor exposure to tripping hazards. Operational improvements will improve the ability of emergency responders to use this crossing, and the site will be closed to visitors and commuters during construction to uphold safety. Impacts to public safety will be beneficial and long-term.

Unique characteristics of the area such as proximity to historic or cultural resources, wild and scenic rivers, ecologically critical areas, wetlands or floodplains. As described in the EA/AoE, there may be some slight changes in unique characteristics of the study area.

Although the Federal Emergency Management Agency has not mapped floodplain in the park, the site is located adjacent to the Green River and is therefore located within the floodplain of the Green River. The project will occur at the existing ferry site, which has already been impacted by the construction of the existing facilities, and the NPS concludes that no other practicable alternative exists for the proposed project. The selected alternative qualifies as a Class 1 project under Director's Order #77-2: Floodplain Management. The proposed project design will lower the north and south approach ramps by 4 feet from their existing elevation to improve public safety to allow the ferry to be operational at lower water elevations. The overall drainage characteristics for the project are to remain the same. The addition of structures to the floodplains will take place in such a way as to both withstand 100-year flood events and to cause minimal impediment of flood waters. Any impediment of flood waters will be minimal and highly localized around these structures, and there will not be any increase in hydrologic risk associated with the implementation of the proposed action. The structure design will adhere to applicable floodplain standards. A SOF for floodplains was included in the public review copy of the EA/AoE. It is also attached to this FONSI as Attachment B.

During construction at the ferry site, the Civilian Conservation Corps (CCC) era stone retaining walls will be removed. After the approach roads and ferry ramps have been regraded to the lower elevation, the original wall stone, along with additional matching new stone, will be utilized to reconstruct the walls following the historic pattern. The locations for the stones that were removed from the wall will be documented and the stones stored outside of the active construction area in a safe location within the park. Once construction along the riverbank is complete, the stones will be replaced in their original configuration. These actions will alter the form and content of the walls to some degree, and the work will be carried out in a manner consistent with the Secretary of the Interior's Standards for Rehabilitation and the accompanying guidelines. The park undertook consultation with the SHPO during the scoping process and throughout the EA/AoE process. The NPS sent a letter to the SHPO in June 2009 with updated information on the project; however no formal response was received from the SHPO.

Because of the strong public support for a low-bridge alternative, the NPS undertook additional consultation with the SHPO for comments on the low-bridge. In February, 2010, the SHPO responded with comments on the low-level bridge, identifying concerns in regards to the Green River Ferry landing and walls. Revised scoping letters were also sent in July 2010; however no formal response from SHPO was received. The NPS executed a MOA with the SHPO prior to implementation (see Attachment C). The MOA states that prior to initiation of work, the NPS will secure the services of a Preservation Professional to develop State Level Documentation for the stone walls, will give the SHPO opportunity to review and comment on all plans and specifications that affect the treatment of the stone walls, and will secure the services of a professional stone mason to assist with planning for and overseeing the stone wall reconstruction, among other stipulations.

The spatial relationship of a few landscape elements (the approach roads, the ferry ramps, the retaining wall, and the canoe ramp) will be changed. The integrity of the landscape will not be damaged irrevocably. The NPS executed a MOA with the SHPO to guide the way in which the selected alternative will be implemented (see Attachment C).

Improvements to the landside elements of the site will not be expected to result in any direct impacts on federally listed threatened and endangered species. A few potential bat roosting trees may be removed; however, the proximity to human activities makes these trees unlikely roosts. USFWS concurred with the park's finding that the project is not likely to affect any federally threatened or endangered species in a letter dated April 4, 2011.

Degree to which effects on the quality of the human environment are likely to be highly controversial. There were no highly controversial effects identified during either preparation of the EA/AoE or the public review period.

Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks. There were no highly uncertain, unique, or unknown risks identified during either preparation of the EA/AoE or the public review period.

Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration. The selected alternative neither established a NPS precedent for future actions with significant effects, nor represents a decision in principle about a future consideration.

Whether the action is related to other actions with individually insignificant, but cumulatively significant, impacts. The selected alternative of the EA/AoE analyzed impacts to soils and topography, water resources, floodplains, wildlife and wildlife habitat, federally listed threatened and endangered species, historic structures, cultural landscapes, archeological resources, visitor use and experience, public safety, transportation and site access, and operations and infrastructure. As described in the EA/AoE, the cumulative impacts of past, present, and future actions in the area,

combined with the impacts of the selected alternative, are not anticipated to produce any significant adverse cumulative effects.

The degree to which the action may adversely affect items listed or eligible for listing in the National Register of Historic Places, or other significant scientific, cultural or historic resources. As described in the EA/AoE, the impact to the Green River's cultural landscapes and archeological resources resulting from the ferry rehabilitation will be long-term, minor to moderate, and adverse. The impacts to historic structures will be long-term, moderate, and adverse. The removal of the CCC era stone retaining walls and reconstruction of the walls with original stone and new matching stone will alter the form and content of the walls to some degree. The NPS executed a MOA with the SHPO prior to implementation (see Attachment C).

The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973. There are no direct adverse impacts on the Indiana bat anticipated under the selected alternative. There are no known underground roost sites located in the study area. There are potential roost trees that may require removal during the redesign and expansion of the parking areas. All tree removal activities will be limited to periods of time when Indiana bats are likely to be hibernating and therefore not using roost trees (i.e., mid November to mid April).

No adverse impacts on gray bats are anticipated under this alternative, either. No gray bat hibernacula or underground roost sites are known to occur within the project area. Timing of tree removal activities will be consistent with the hibernation of the gray bat.

Direct effects on the Kentucky cave shrimp are expected to be minimal. The study area is outside of the cave and downstream of Kentucky Cave shrimp habitat. Though construction activities in the area have the potential to release sediments into the Echo River, such effects will be avoided or minimized to the maximum extent practicable through strict implementation of erosion and sedimentation control measures, including post-construction stabilization.

Lastly, the selected alternative is not expected to have a direct effect on federally-listed or candidate mussels. No federally listed or candidate species were found within the study area during the survey conducted for this project. If a listed species is encountered, construction activities will be stopped and immediate consultation with the USFWS will be initiated.

Overall, short-term, negligible to minor, adverse impacts on endangered species, candidate species or their habitat during construction and long-term, negligible to minor, adverse impacts because of the small amount of terrestrial clearing are expected to result in no observable or measurable impacts on federally listed species, their habitats, or the natural processes sustaining them or detectable impacts within the natural range of variability. USFWS concurred with this finding in a letter dated April 4, 2011.

Whether the action threatens a violation of federal, state, or local environmental protection law. The selected alternative violates no federal, state, or local environmental protection laws.

ATTACHMENT A

FINDING OF NO SIGNIFICANT IMPACT

**REHABILITATE GREEN RIVER CROSSING
MAMMOTH CAVE NATIONAL PARK**

IMPAIRMENT DETERMINATION

IMPAIRMENT DETERMINATION

THE PROHIBITION ON IMPAIRMENT OF PARK RESOURCES AND VALUES

NPS *Management Policies 2006*, Section 1.4.4, explains the prohibition on impairment of park resources and values:

While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the Nation Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

WHAT IS IMPAIRMENT?

NPS *Management Policies 2006*, Section 1.4.5, *What Constitutes Impairment of Park Resources and Values*, and Section 1.4.6, *What Constitutes Park Resources and Values*, provide an explanation of impairment.

Impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.

Section 1.4.5 of *Management Policies 2006* states:

An impact on any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

Per Section 1.4.6 of *Management Policies 2006*, park resources and values that may be impaired include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and condition that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structure, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park, but this would not be a violation of the Organic Act unless the NPS was in some way responsible for the action.

HOW IS AN IMPAIRMENT DETERMINATION MADE?

Section 1.4.7 of *Management Policies 2006* states, "[i]n making a determination of whether there would be an impairment, an NPS decision maker must use his or her professional judgment. This means that the decision maker must consider any environmental assessments or environmental impact statements required by the National Environmental Policy Act of 1969 (NEPA); consultations required under Section 106 of the National Historic Preservation Act (NHPA); relevant scientific and scholarly studies; advice or insights offered by subject matter experts and others who have relevant knowledge or experience; and the results of civic engagement and public involvement activities relating to the decision.

Management Policies 2006 further define "professional judgment" as "a decision or opinion that is shaped by study and analysis and full consideration of all the relevant

facts, and that takes into account the decision-maker's education, training, and experience; advice or insights offered by subject matter experts and others who have relevant knowledge and experience; good science and scholarship; and, whenever appropriate, the results of civic engagement and public involvement activities relation to the decision.

IMPAIRMENT DETERMINATION FOR THE SELECTED ALTERNATIVE

This determination on impairment has been prepared for the selected alternative described on pages 24-33 of the EA/AoE. An impairment determination is made for all resource impact topics analyzed for the selected alternative. An impairment determination is not made for visitor use and experience, public safety, socioeconomic resources and adjacent lands, and operations and infrastructure because impairment findings relate back to park resources and values, and these impact areas are not generally considered to be park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values.

SOILS AND TOPOGRAPHY

Overall, Alternative B will result in short-term, moderate, adverse impacts on soils and topography related to construction since these impacts will be readily apparent and since mitigation measures (likely to be successful) will be required to offset adverse impacts. Alternative B also will result in long-term, minor, adverse impacts on soils and topography since the additional impervious surface covering soils and additional compaction of soils will be a relatively small impact that may require some basic stormwater mitigation (which is likely to be successful). Finally, Alternative B also will have long-term, beneficial impacts on soils and topography because of the reduction of erosion caused by visitor foot traffic.

Because construction impacts will be temporary and mitigated, because increased compacted impervious surfaces will be limited to less than half an acre, and because site improvements will reduce erosion along riverbanks and existing trails, Alternative B will not result in impairment of soils and topography.

WATER RESOURCES

Overall, Alternative B will result in short-term, moderate, adverse impacts on water resources because sedimentation during construction will be detectible but will be kept below water quality standards. Alternative B also will result in long-term, negligible, adverse impacts on water resources because following construction, any pollutants from the runoff from increased impervious surfaces are likely to be below levels of detection and will be within historical water quality conditions. Finally, Alternative B will result in long-term, beneficial impacts on water resources related to reduced sedimentation associated with erosion, specifically around the Echo River Spring Trail.

Because construction impacts will be temporary and mitigated, because increased compacted impervious surfaces will be limited to less than half an acre, and because site improvements will reduce erosion along riverbanks and existing trails, Alternative B will not result in impairment of water resources.

FLOODPLAINS

Alternative B will result in a long-term, minor, adverse impact on the floodplain because there will be minimal alteration in the input of water during storm events and impedance of this flow through the project area will be localized. There will be some change in the cross-section of the floodplain where soil excavation will remove approximately 6,500 to 7,000 cubic feet of the river bank. This change will cause a very small alteration in the flow of floodwaters in this area without impeding the flow of floodwaters.

Alternative B will not result in impairment of floodplains because the minimal construction of structures within the floodplain will not noticeably alter overall floodplain functions nor introduce any human risk.

WILDLIFE AND WILDLIFE HABITAT

Alternative B will result in short-term, minor, adverse impacts and long-term, minor, adverse impacts on wildlife and wildlife habitat related to removal of habitat due to construction activities, and long-term, beneficial impacts on wildlife and wildlife habitat related to concentrating pedestrian traffic in designated areas.

Alternative B will not result in impairment of wildlife or wildlife habitat because of the limited area of wildlife habitat that will be affected and because partial clearing of terrestrial habitat will be mitigated through re-establishment of native plants to restore impacted areas.

FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES

Overall, Alternative B will result in short-term, negligible to minor, adverse impacts on federally listed threatened and endangered species during construction and long-term, negligible to minor, adverse impacts because of the small amount of terrestrial clearing; these activities are expected to result in either no observable or measurable impacts on federally listed species, their habitats, or the natural processes sustaining them or detectable impacts within the natural range of variability. If a listed species were encountered, construction activities will be stopped and immediate consultation with the USFWS will be initiated.

Alternative B will not result in impairment of federally listed threatened and endangered species because any reduction in potential habitat for these species will be mitigated,

tree removal activities will be limited to periods of time when bats are likely to be hibernating, and through the use of best management practices to reduce erosion and sedimentation during construction. Additionally, by concentrating pedestrian traffic on designated pathways through natural areas, Alternative B will minimize the potential for human-induced disturbance in potential habitat areas.

HISTORIC STRUCTURES

Alternative B will have a long term, moderate, adverse impact on the historic limestone retaining walls due to the removal and resetting of these walls during construction activities. These impacts will be minimized through limiting removal if possible and reasonable to the smallest area practicable, as well as replacement of rocks and resetting to match the historic pattern and feel of the wall. The location and site of the removed elements will be recorded and the rocks will be replaced in the same relationship as the original. This work will be carried out in a manner consistent with the Secretary of the Interior's Standards for Rehabilitation and the accompanying guidelines. The context of the walls will have been altered but the outward appearance of the walls will be maintained. The temporary removal of the walls will constitute an alteration and potential loss of some historic fabric. An MOA has been executed between the SHPO and the NPS to ensure appropriate mitigation of impacts on cultural resources.

Since the NPS will be implementing the MOA to limit and mitigate impacts on cultural resources and since the historic walls are not necessary to fulfill specific purposes identified in the establishing legislation of the park and the moderate impacts are not key to the cultural resources integrity of the park, Alternative B will not constitute an impairment of historic structures.

CULTURAL LANDSCAPES

Alternative B will result in long-term, minor to moderate, adverse impacts on the cultural landscape because alterations at the site will alter the south side river bank, approach roads, site circulation, and the historic retaining walls. This has the potential to diminish the overall integrity of the resource. An MOA has been executed between the SHPO and the NPS to ensure appropriate mitigation of impacts on cultural resources and to ensure that their values are retained to the extent possible.

Since the NPS will be implementing the MOA to limit and mitigate impacts on cultural landscapes and since the alterations of the site will not impede the ability of the park to fulfill the specific purposes identified in the establishing legislation and the minor impacts are not key to the cultural resource integrity of the park, Alternative B will not constitute an impairment of cultural landscapes.

ARCHEOLOGICAL RESOURCES

Alternative B will have long-term, minor to moderate, adverse impacts on archeological resources due to impacts associated with the proposed construction activities and with implementing the provisions of the MOA with the SHPO associated with site mitigation such as archeological data recovery or protecting these resources by covering over top of them in place. These impacts will be avoided and or minimized through adjustment of the site features if practicable. An MOA has been executed between the SHPO and the NPS to ensure appropriate mitigation of impacts on cultural resources.

Since impacts to archeological resources will be avoided and or minimized through adjustment of the site features where practicable and the NPS will also be implementing the MOA to limit and mitigate impacts on archeological resources these impacts on archeological resources will not impede the ability of the park to fulfill the specific purposes identified in the establishing legislation and these impacts are not key to the cultural integrity of the park, Alternative B will not constitute an impairment of archeological resources.

ATTACHMENT B

FINDING OF NO SIGNIFICANT IMPACT

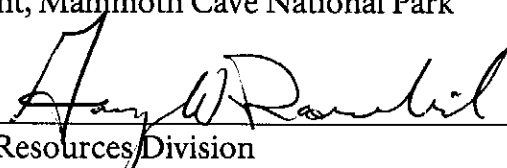
**REHABILITATE GREEN RIVER CROSSING
MAMMOTH CAVE NATIONAL PARK**


**STATEMENT OF FINDINGS
FOR
FLOODPLAINS**

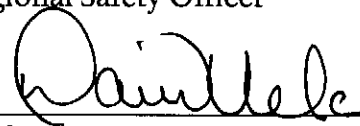
STATEMENT OF FINDINGS
FOR
EXECUTIVE ORDER 11988 ("FLOODPLAIN MANAGEMENT")

**Rehabilitate Green River Crossing
Environmental Assessment/Assessment of Effect
Mammoth Cave National Park
Kentucky**

Recommended:  10/13/2011
Superintendent, Mammoth Cave National Park Date

Concurred:  10-19-2011
Chief, Water Resources Division Date

Concurred:  11-8-2011
Southeast Regional Safety Officer Date

Approved:  11-10-11
Director, Southeast Region Date

STATEMENT OF FINDINGS
FOR
EXECUTIVE ORDER 11988 ("FLOODPLAIN MANAGEMENT")

Executive Order (EO) 11988, Floodplain Management, requires the National Park Service (NPS) and other agencies to evaluate the likely impacts of actions in floodplains. It is NPS policy to preserve floodplain values and minimize potentially hazardous conditions associated with flooding. This statement of findings has been prepared to comply with EO 11988.

INTRODUCTION

PROPOSED ACTION

NPS is proposing to rehabilitate the site of the Green River Ferry in Mammoth Cave National Park (the park) in Kentucky to correct existing operational problems and to accommodate multiple uses of the site while improving safety at the site. Specifically, the NPS will improve the availability of the crossing during periods of low water along with achieving a greater level of safety, service, and reliability. The proposed project qualifies as a Class 1 project under Director's Order #77-2: Floodplain Management. To qualify as Class 1, the actions include the "location or construction of administrative, residential, warehouse and maintenance buildings, non-excepted parking lots or other man-made features, which by their nature entice or require individuals to occupy the site, are prone to flood damage, or result in impacts to natural floodplain values." Relevant figures from the Environmental Assessment/Assessment of Effect are attached to this Statement of Findings to clearly display the park's location and the extent of the proposed action.

The approach roads will be lowered and regraded at a consistent grade, and the concrete aprons that serve as the ferry ramps will terminate at an elevation of approximately 416 MSL (below the Green River crossing gauge). The hand-placed stone retaining walls will be removed and rebuilt as needed for continued bank stabilization (all four walls). The existing site lighting may need to be removed during regrading of the approach roads; however, the lighting will be replaced and related infrastructure may be improved.

Reconfiguration of the parking lot on the south bank will be required related to the construction of the separate canoe ramp. This canoe ramp will be approximately 8 feet wide and will be provided off the northwest corner of this parking lot, more than 100 feet upstream of the ferry crossing. The ramp will provide a switch-back pathway to

keep the grade at approximately 10% and will be accompanied by stairs for steeper but more direct access to the river. Larger boats will still be launched from the ferry ramps as is currently done.

A scenic overlook will be constructed to allow visitors to safely observe the ferry and the river. The overlook will be approximately 400 square feet in size. This overlook will be designed to comply with Americans with Disabilities Act of 1990 (ADA) accessibility requirements.

The existing parking lots will be improved. The parking lot on the north side will be paved and marked, will provide parking for four to six vehicles (without trailers), and will provide an area in which vehicles with or without trailers (including recreational vehicles [RVs]) could turn around. This improvement will pave an area slightly larger than the existing lot, resulting in an area approximately 4,000 square feet (0.9 acres). The parking lot on the south side will be expanded to the east (away from the river) and redesigned to provide spaces for 36 standard vehicles plus two RVs and four vehicles with trailers. This will expand the parking lot by approximately 9,300 square feet (0.21 acres). When combined with the existing footprint of the parking lot, this will result in about 30,000 square feet (0.69 acres) of parking on the south bank. The road will be widened to include a turning lane into the parking lot on the south side of the river. The roadside trailer parking along the south bank approach road will be paved to provide formal parking for two to three vehicles with trailers.

Finally, the Echo River Spring Trail will be improved. A new segment of trail will be added to connect the southern Green River Ferry parking lot to the portion of the Echo River Spring Trail on the opposite side of the Echo River Spring Outlet. This connection will be approximately 300 feet long and will include a pedestrian bridge (approximately 10 feet wide and 100 feet long) to be constructed over the Echo River Spring Outlet. The addition of this segment will create a loop hike (approximately 0.4 miles) from the parking lot, to the Echo River Spring, back around and over the Echo River Spring Outlet, and ending back at the parking lot.

The existing Echo River Spring Trail from the Green River Ferry parking lot to the Echo River Spring overlook will be improved by providing a raised boardwalk leading to a new overlook at Echo River Spring. The new overlook also will provide steps down to the spring. On the north side of the Echo River Spring Outlet, the remaining segment of existing trail and the new segment completing the loop will be a hardened surface at the existing grade. This will result in an entire loop designed to comply with ADA accessibility requirements.

OPERATIONAL PROBLEMS

The operation of the Green River Ferry, formerly called the Mammoth Cave Ferry, is important to the park and to the local community as it is part of the primary, most direct route of travel through the park for people living immediately north of the park. The ferry carries approximately 96,000 vehicles per year, operating 16 hours per day. On

average, 6 percent are NPS vehicles, 32 percent are park visitors, and 62 percent are local commuters traveling across the park. However, the operation of the ferry has been subject to interruption by periods of low or high water, severe weather, and closures for repairs and maintenance.

When the ferry was put in place in 1934, the basic configuration was based on the pool level created by the U.S. Army Corps of Engineers' Green River Lock and Dam 6 (LD6), which is located approximately 0.5 mile downstream of the park boundary and approximately 16 miles downstream of the Green River Ferry. LD6 has not been used since 1951, and the entire structure has deteriorated during the intervening years. In 1988, for the first time, the operation of the Green River Ferry was interrupted by lower water conditions. In the last few years, normal summer and fall rainfall amounts have not been sufficient to maintain the pool level, during which time the Green River Ferry has been forced to close. With the design improvements proposed by the project, the operation of Green River Ferry will be improved. The preferred alternative does not include dredging therefore the ferry may still close during extreme low water conditions; however, these improvements should reduce the number of days that the ferry will need to be closed because of low water.

In addition to low water conditions, periods of high water, defined as water levels above 441 feet above mean sea level (MSL), interrupt operation of the Green River Ferry. The ferry operates as a tethered system, meaning that guide lines and pulleys attach it to cables suspended across the river. The guide lines are adjusted as the river rises and falls and are used to maintain the position of the ferry as it crosses the river. High water conditions preclude the ferry from reaching both banks because of the tether system. With the location of the cable towers, the tethers extend only far enough to allow the ferry to reach the banks when water elevations are 441 feet or lower.

Severe weather can limit ferry operations by causing safety concerns related to high currents and the amount of drift in the river that could potentially damage the ferry. Closures for safety concerns, necessary repairs and maintenance of the ferry boat cannot be avoided.

The proposed design will improve operational efficiency and safety at all water levels but with an emphasis on operation at low water levels. To enhance operations, the ferry ramps will be lowered to 416 MSL and the approach roads will be improved to provide uniform grades on both sides of the Green River. In addition, ferry operational hours will be increased from 16 hours of service a day to 20 hours of service a day (provided between 5 a.m. and 1 a.m., pending the availability of funding).

MULTIPLE USES OF THE SITE

The Green River Ferry site currently serves multiple uses. The primary use of the site is the operation of the ferry, but the approach ramps are also used as a launching and landing point for boats and canoes. In addition, a trail to the Echo River Spring is located near the site. All of these activities exist in a small area, which can cause traffic

congestion and insufficient parking to accommodate all of these uses. There is limited parking to serve boaters and canoeists and people wanting to walk the trail to the Echo River Spring. In addition, safety is a concern for boaters and canoeists, who use the same ramps as the ferry, and for vehicle and pedestrian traffic.

The Green River Ferry currently operates 16 hours daily, from 6 a.m. to 10 p.m., except Christmas. However, the limited capacity of the ferry and the multiple uses of the site can impede ferry operations. The ferry has the capacity to carry three passenger vehicles at one time. At best, it takes approximately three minutes to load three passenger vehicles, cross the river, unload, load three more vehicles for the return trip, and unload those vehicles. If a vehicle is pulling a trailer, the ferry may only be able to take one vehicle plus the trailer. The capacity range of the ferry is 25 to 40 vehicles per hour in each direction, for a total of 50 to 80 vehicles per hour.

The ferry landings are also the primary access to the river for boat and canoe launching and landing. When boats or canoes are being launched or taken out, the ferry must stop. During busy periods, especially weekends in the spring and fall seasons and daily during the summer, there are frequent traffic backups. It is not unusual on weekends for vehicles to wait more than an hour to board the ferry. The traffic backups are caused by both the volume of traffic and sharing the landings with boats and canoes. An estimated 6,977 canoes used the Green River in 2009. Of these, many may have used the Green River Ferry site for launching or landing. Additionally, approximately 500 boats used the Green River crossing as a launch or landing. Recent increases in gross receipts from canoe rentals are indicative of the growing recreational use of the river. The parking area will be improved to better serve vehicles, boat/canoe use and pedestrian traffic near the ferry approach and a turn lane will be added to the Green River Ferry Road for the entry into the parking lot, thereby improving safety at the site.

Safety is a concern at the site for both vehicle and pedestrian traffic. There is currently no provision for vehicles pulling boat or canoe trailers to turn around easily, which is even more difficult when the parking area is full and vehicles are parked on the roadsides, creating safety concerns. In addition, there are no accommodations for recreational use of the site in compliance with Americans with Disabilities Act of 1990 (ADA) standards.

Under the proposed design some uses of the current Green River Ferry site will be separated. While the ferry operation will remain in the same location, a canoe ramp will be provided upstream, off the parking lot on the south side of the river. The parking lot will be redesigned and expanded to better manage the volume of vehicle, boat/canoe, and pedestrian traffic in the existing parking lot near the ferry approach, thereby improving safety at the site. Larger boats will still be launched from the ferry ramps.

In addition, the Echo River Spring Trail will be improved to provide a link over the Echo River Spring Outlet and will be designed to comply with ADA accessibility requirements.

SITE DESCRIPTION

The site of the Green River Crossing is in Mammoth Cave National Park in Kentucky. The Green River roughly bisects the park, with Mammoth Cave and other major karst features on the south side of the Green River and backcountry recreation resources on the north side. This site serves not only the Green River Ferry but also boaters and canoeists and visitors wanting to walk the trail to the Echo River Spring.

On both sides of the Green River, ferry operations consist of access roads and ferry approach ramps with concrete landings as well as cable towers for the tethered system on which the ferry operates. On the north side of the river, there is a small parking area for boaters and canoeists who use the ferry landings for access to the river. On the south side of the river, there is a larger parking area, with a trail to the Echo River Spring.

FLOODPLAINS

Although the Federal Emergency Management Agency has not mapped floodplains in the park, the site is located adjacent to the Green River and is therefore located within the floodplain of the Green River (see Figure 2 of the EA/AoE). The Green River frequently floods to a height of 30 feet at the site, as measured by the Green River crossing gage, inundating nearly all of the site. Floods of higher than 50 feet, as measured by the Green River crossing gauge, occur approximately every 10 years. The 100-year flood level is estimated at more than 60 feet; a map of floodprone areas prepared by the U.S. Geological Survey (USGS) in 1972 estimated the 100-year flood level at elevation 480 feet above mean sea level, corresponding to a flood level of approximately 60 feet. In 2009, Vanasse Hangen Brustlin, Inc. carried out a Sediment Analysis Interpretation of the Green River to determine the riverbed characteristics, as well as sedimentation and flooding attributes in order to assist in the analysis of the proposed project.

The proposed project design will lower the north and south approach ramps by 4 feet (420 feet to 416 feet) from their existing elevation to improve public safety. Lowering the approach ramps will allow the ferry to be operational at lower water elevations. The overall drainage characteristics for the project are to remain.

This portion of the park is located in Edmonson County, which has no floodplain regulations, policies or management plan. In addition, the State of Kentucky ceded jurisdiction of the park area to the federal government for use as a national park and therefore does not regulate floodplains within the park.

JUSTIFICATION FOR USE OF THE FLOODPLAIN

The transportation route identified in this project crosses the Green River; therefore, the roadway must traverse the floodplain to access the existing ferry crossing, and no practicable alternative site location outside of the floodplain exists for this project. The proposed action is to continue operations of the Green River Ferry at its existing

location by correcting existing operational problems and accommodating multiple uses of the site while also improving safety at the site. The site was previously impacted by the construction of the original ferry site in 1934, and the proposed improvements are consistent with the current land use in the area. Measures will be taken to minimize harm to life, property, and natural resources. The project will be designed to minimize the impact on previously undisturbed areas.

The protection of people and property is of high priority to Mammoth Cave National Park. A majority of the proposed project will occur in a currently disturbed area; only a small portion of the trail and parking lot improvements will impact a previously undisturbed area. The project will be designed to prevent or reduce flood damage. The park has established "Flooding Preparation and Response Procedures" under its Severe Weather Plan, and additional evacuation plans will be developed if necessary. Given these steps towards risk mitigation, the risk to life and property will be minimized. There will be no significant effect on natural or beneficial floodplain values.

INVESTIGATION OF ALTERNATIVE SITES

The goal of the project is to rehabilitate the Green River crossing. The crossing is already developed; therefore, rehabilitation of the existing site will greatly minimize environmental impacts associated with this project. Development at other sites would require clearing of habitat that may serve federally threatened or endangered species and would have the potential to impact archeological sites scattered along the Green River. Additionally, there is limited availability of developable land because of the sensitive geological features of the area. No other suitable project sites exist; improvement of the existing site is the only practicable alternative.

HYDROLOGIC RISK

Floods reach a height of 30 feet at the site, as measured by the Green River crossing gage, approximately once a year. These floods inundate nearly the entire site. However, no inhabitable buildings are located at the site. The additional project features will be designed in such a way as to both withstand 100-year flood events and to cause minimal impediment of flood waters. The proposed project design will lower the north and south approach ramps by 4 feet (420 feet to 416 feet) from their existing elevation to improve public safety. Lowering the approach ramps will allow the ferry to be operational at lower water elevations. There will not be any increase in hydrologic risk associated with the implementation of the proposed action. Additionally, when flood levels on the Green River reach a height of 21 feet, the ferry is closed and access to the site is controlled through the use of temporary road barricades.

Due to the relatively low percentage of impervious surfaces immediately upstream of the project area and the large drainage area of the river, flood flows and peak discharge events are delayed following storm events, providing ample time for evacuation of the area as water levels rise. The actual lag time for flooding after a heavy rain is dependent on where the rain occurs: if heavy rain falls inside the park, the lag time is very short; if

heavy rain falls outside the park on the sinkhole plain, lag time can be as much as 24 hours. Furthermore, park personnel stated that smaller, local rainfall events typically do not produce flood conditions at the site. More regional rainfall is typically needed to produce flooding conditions at the site, for which the drainage area of Green River is nearly 2,000 square miles.

Furthermore, it should be noted that the ferry crossing is not the only evacuation or transportation route for emergency vehicles. Similarly, the Green River Ferry Road is not the only community evacuation route.

MITIGATIVE ACTIONS

Flood mitigation is offered by incorporating methods for protecting life and minimizing storm damage through appropriate procedures. To help protect life, no inhabitable buildings are located at the site and access to the site is closed when water levels at the Green River crossing reach a height of 441 MSL, which is well short of the estimated 100-year flood level. The structures that will be added to the site will be designed in such a way as to withstand flood events while impeding flow as little as possible. The structure design will adhere to applicable floodplain standards. The park has established "Flooding Preparation and Response Procedures" under its Severe Weather Plan which is reviewed annually, and additional evacuation plans will be developed if necessary. Mitigation to minimize storm damage will include utilization of sustainable design principles and using best management practices during and after construction.

These mitigative measures will be in accordance with the NPS floodplain guidelines and with EO 11988, Floodplain Management. In addition, mitigation will ensure that structures and facilities are designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR Part 60). Therefore, the proposed project will not have an adverse impact on the floodplain and its associated value.

COMPLIANCE

According to U.S. Army Corps of Engineers guidelines, the Green River is considered a water of the U.S. Because minor channel grading and bank stabilization along the Green River are part of the proposed project, a U.S. Army Corps of Engineers Section 404 Permit will be required to comply with Section 404 of the CWA, and Section 401 Water Quality Certification will be required for documentation of potential impacts on water quality.

The Environmental Assessment, this Statement of Findings for Executive Order 11988, and the Finding of No Significant Impact (FONSI), when signed, will complete the requirements for the NEPA for this project.

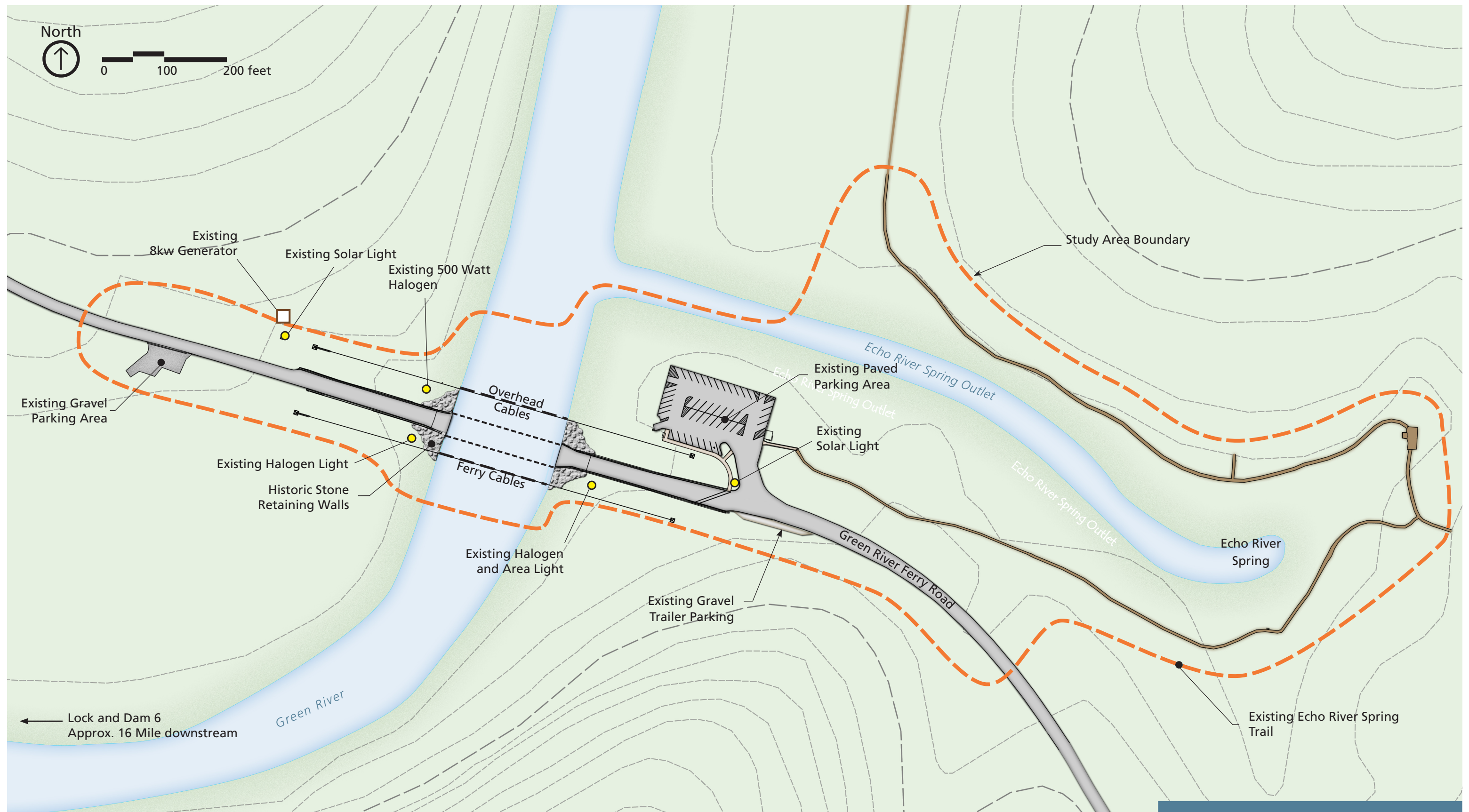
CONCLUSION

The protection of people and property, including natural and cultural resources, is of high priority to NPS. The proposed project will occur at the existing ferry site which has already been impacted by the construction of the existing facilities, and the NPS concludes that no other practicable alternative exists for the proposed project. The project will be designed to preserve floodplain values, minimize potentially hazardous conditions associated with flooding, and to reduce flood damage. The park will continue to review and update emergency procedures annually, including flooding preparation and response. Given these steps towards risk mitigation, the risk to life and property will be minimized. Furthermore, no significant adverse effect on natural resources and functions of floodplains or an increase in flood risks will occur from the proposed project. There is no risk of permanent adverse affects on the natural and beneficial values served by floodplains.

Mitigation will include utilization of sustainable design principles, appropriate siting, and best management practices during and after construction. NPS finds the proposed project to be consistent with EO 11988.



Figure 1 Project Location



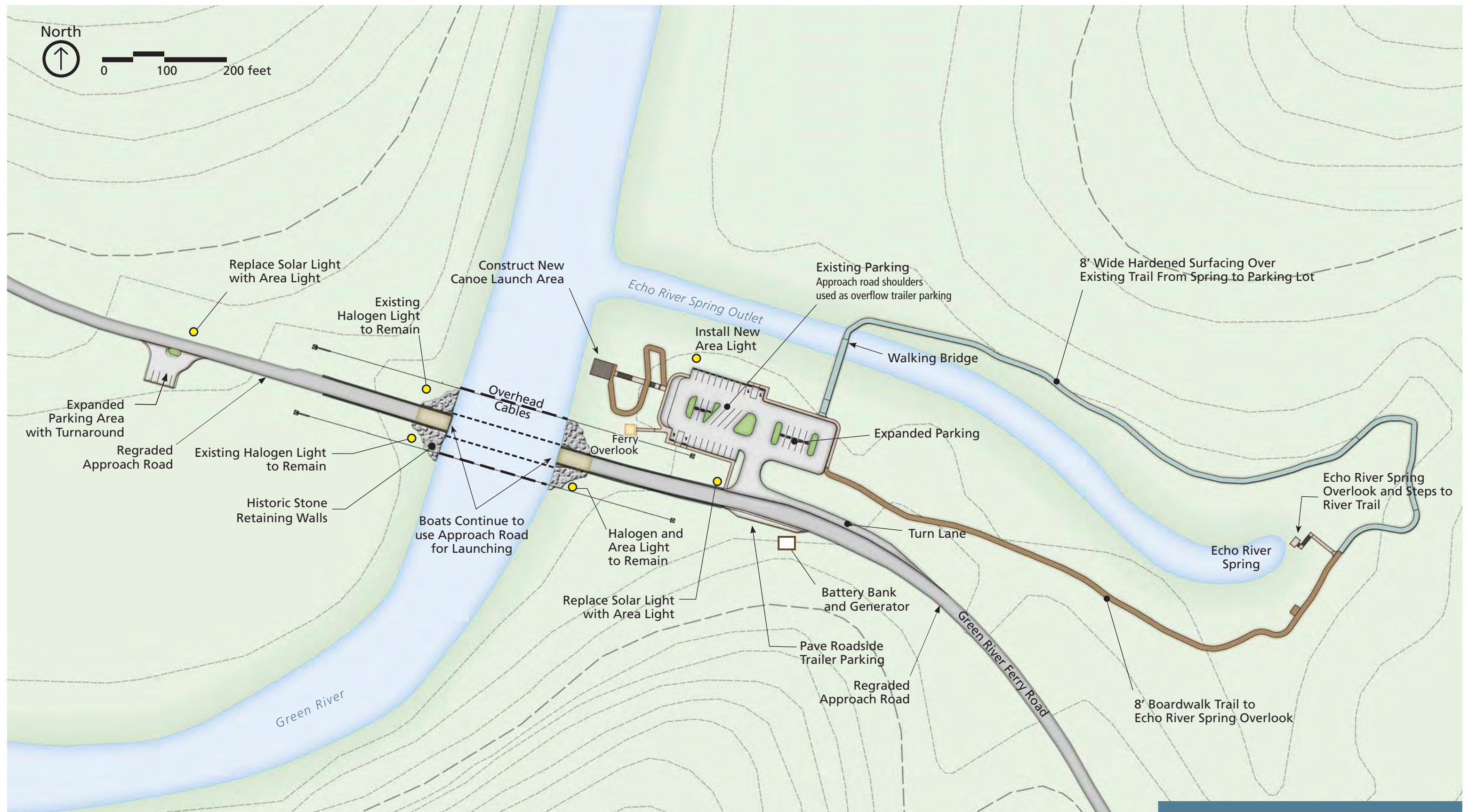
Rehabilitate Green River Crossing EA / AoE



National Park Service
U.S. Department of the Interior

Mammoth Cave National Park

Figure 2
Study Area



Rehabilitate Green River Crossing EA / AoE



National Park Service
U.S. Department of the Interior
Mammoth Cave National Park

Figure 3

Alternative B: Ferry Rehabilitation
with Upstream Canoe Ramp
(No Dredging) NPS Preferred

ATTACHMENT C

FINDING OF NO SIGNIFICANT IMPACT

**REHABILITATE GREEN RIVER CROSSING
MAMMOTH CAVE NATIONAL PARK**

MEMORANDUM OF AGREEMENT



United States Department of the Interior

NATIONAL PARK SERVICE

Mammoth Cave National Park
P.O. Box 7
Mammoth Cave, Kentucky 42259-0007

IN REPLY REFER TO:

A44

**MEMORANDUM OF AGREEMENT (MOA)
AMONG THE UNITED STATES DEPARTMENT OF THE INTERIOR, NATIONAL PARK
SERVICE, MAMMOTH CAVE NATIONAL PARK
AND THE KENTUCKY STATE HISTORIC PRESERVATION OFFICER REGARDING
THE REHABILITATION OF THE GREEN RIVER FERRY CROSSING**

WHEREAS, the United States Department of the Interior, National Park Service, Mammoth Cave National Park (NPS) proposes to rehabilitate the Green River Ferry Crossing in Edmonson County, Kentucky (the Undertaking); and

WHEREAS, the NPS consulted with the Kentucky State Historic Preservation Officer (SHPO) pursuant to the November 14, 2008 *Programmatic Agreement among the National Park Service (U.S. Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers* and 36 CFR Part 800; and

WHEREAS, the NPS and SHPO concur that the Undertaking will adversely affect historic properties, as defined at 36 CFR § 800.16(l)(1); and;

WHEREAS, the NPS notified the Advisory Council on Historic Preservation (ACHP) of the potential adverse effect pursuant to 36 CFR §800.6(a)(1)(i)(B) and, in turn, 36 CFR §800.10(b); and

WHEREAS, the ACHP declined to participate pursuant to 36 CFR §800.6(a)(1)(iv); and

WHEREAS, the NPS provided for public involvement and considered alternatives to the Undertaking in the context of complying with the National Environmental Policy Act of 1969 (NEPA) pursuant to 36 CFR § 800.8;

NOW, THEREFORE, the NPS and SHPO agree that the Undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the Undertaking on historic properties, and further agree that these stipulations shall govern the Undertaking and all of its parts until this MOA expires or is terminated.

NOW, THEREFORE, the NPS shall ensure that the Undertaking is implemented in accordance with the following stipulations of this MOA.

STIPULATIONS

I. CIVILIAN CONSERVATION CORP (CCC) STONE WALLS

The NPS shall ensure that the following measures are carried out:

1. All work related to the stone walls shall be conducted in accordance with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*, and in particular, the standards and guidelines for reconstruction. Where new materials are required to accomplish the reconstruction, the new material shall match the original materials in type, form, size, texture, and color. Reconstruction plans and specifications shall utilize the same style, finishes, features, and dry stone masonry construction techniques as the original stone wall.
2. Prior to the initiation of work, the NPS shall secure the services of a Preservation Professional meeting at a minimum the Secretary of the Interior's *Professional Qualification Standards* (48 FR 44738-9) to develop State Level Documentation for the stone walls. Copies of this documentation will be made available to the SHPO and the Kentucky State Library and Archives. This documentation will inform plans for the treatment of the stone walls.
3. The NPS shall give the SHPO opportunity to review and comment on all plans and specifications that affect the treatment and disposition of the stone walls as they are developed. Efforts shall be made to accommodate SHPO recommendations to the extent practicable. When these recommendations cannot be implemented, the NPS shall continue consultation with the SHPO to develop an acceptable alternative.
4. The NPS shall secure the services of a professional stone mason certified by the NPS Historic Preservation Center or the Dry Stone Conservancy, or possessing equivalent training and demonstrated experience, to assist with planning for and to oversee implementation of both the dismantling and reconstruction of the stone walls.

II. IDENTIFICATION, EVALUATION AND TREATMENT OF ARCHEOLOGICAL RESOURCES

The NPS shall ensure that the following measures are carried out:

1. All archaeological work required by this Memorandum of Agreement will be carried out by Preservation Professionals meeting at a minimum the Secretary of the Interior's *Professional Qualification Standards* (48 FR 44738-9). The NPS will consult with the Kentucky SHPO for concurrence that the Preservation Professionals meet these *Standards*.
2. For any areas not previously surveyed that are within the agreed upon area of potential effect for the undertaking, the NPS shall conduct, or cause to be conducted, an archaeological survey to determine if these areas contain archaeological sites that are potentially eligible for listing in the National Register of Historic Places. A report documenting the results of this investigation will

be prepared within forty-five (45) days of completion of the survey, in accordance with the SHPO's most current *Specifications for Conducting Field Work and Preparing Cultural Resource Assessment Reports* (the *Specifications*) and will be submitted by the NPS to the SHPO for review, comment and approval. The SHPO shall have 30-days from the date of submission in which to comment. If prehistoric sites are identified, the report will also be submitted concurrently to relevant federally recognized Indian Tribes for comment.

3. For potentially eligible archaeological sites that are within the agreed upon area of potential effect for the undertaking, whether previously or newly identified, the NPS shall conduct, or cause to be conducted, archaeological testing prior to the initiation of any construction activities to determine if the sites are eligible for listing in the National Register of Historic Places. A report shall be prepared within forty-five (45) days of completion of the testing, in accordance with the SHPO's most current *Specifications* and will be submitted by the NPS to the SHPO and interested federally recognized Indian Tribes for review and comment. The SHPO and tribes shall have thirty (30) days from the date of receipt in which to comment.

4. If based on the testing, sites are determined by the SHPO to be eligible for listing in the National Register and cannot be avoided, the NPS will develop a data recovery plan (DRP) in conformance with the Secretary of the Interior's *Standards for Archaeology and Historic Preservation* (48 FR 44716-42) and the SHPO's most current *Specifications*. The DRP will be submitted to the SHPO for review and comment. Unless the SHPO comments or objects within thirty (30) days of receiving the DRP, the NPS shall ensure that the plan is implemented prior to the initiation of construction activities. If unforeseen circumstances require the modification of the DRP, the NPS and the Principal Investigator (950 CMR 70.04) shall consult with the SHPO to develop and implement the required modifications. A final report documenting the results of the implemented DRP shall be submitted by the NPS to the SHPO within sixty (60)-days of completion of the work, for review, comment and approval.

5. The NPS shall ensure that a digitized copy of the final report is transmitted to the NPS History Program for publication as a web document on the NPS website. Three bound copies of the final report shall be submitted to the SHPO.

6. The NPS shall have an archeologist present on site to monitor for archeological resources during excavation and ground disturbing activities.

7. The NPS shall ensure that all archaeological collections are curated in accordance with 36 CFR Part 79.

III. IDENTIFICATION, EVALUATION AND TREATMENT OF CULTURAL LANDSCAPE RESOURCES

The NPS shall ensure that the following measures are carried out:

1. Preparation of a Cultural Landscape Report (Parts 1 and 2)

The NPS is preparing a cultural landscape report (CLR) for the core visitor service area centered on the Mammoth Cave Hotel and surrounding landscape, which includes the Green River Ferry site. This CLR will include parts 1(site history, existing conditions, analysis, and evaluation) and 2 (treatment). The CLR shall be prepared in accordance with the NPS *A Guide to Cultural Landscape Reports*.

2. The NPS shall submit the 100% draft CLR to the SHPO for review and comment. The SHPO shall have 30 calendar days from the date of receipt to provide comments to the NPS. If the SHPO fails to respond within this time period, NPS shall assume the SHPO has no comments.

3. The NPS shall submit 2 (two) paper copies, 1 (one) electronic copy (MS Word) on CD-ROM, and 1 (one) electronic copy (Adobe Acrobat) of the final cultural landscape report to the SHPO.

IV. HUMAN REMAINS AND OTHER POST-REVIEW DISCOVERIES

1. The NPS shall ensure that if any human remains are discovered during the implementation of the DRP or during any other construction activities, then the activities that caused the human remains to be discovered shall cease immediately, the area shall be cordoned off, and NPS law enforcement shall be notified immediately to take appropriate investigatory measures. As necessary, NPS law enforcement will notify the Federal Bureau of Investigations (FBI) and the Edmonson County Coroner. Following completion of the appropriate local notifications and procedures, the SHPO and Kentucky Office of State Archaeology shall be notified of the discovery. In the event that Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered during construction, the regulations implementing the Native American Graves Protection and Repatriation Act (43 CFR Part 10) will be followed. Any non-Native American human remains shall be treated in accordance with applicable federal law and KRS 72.020 to the extent that it applies within this area of federal exclusive jurisdiction.

2. The NPS shall notify the SHPO if any other historic or archaeological property is discovered during construction activities. The NPS shall protect the discovery location, and shall consult with the SHPO to identify and evaluate, and to avoid, minimize, or mitigate any adverse effect to, the historic or archaeological property, consistent with 36 CFR 800.13(b) and 36 CFR Part 60.

IV. MONITORING OF CONSTRUCTION ACTIVITIES

The SHPO may monitor activities pursuant to this agreement. The NPS shall cooperate with the SHPO in carrying out any monitoring and review responsibilities.

V. DISPUTE RESOLUTION

1. The signatories agree that this MOA shall guide the implementation of the Undertaking for addressing its effects to and treatment of historic properties until this MOA expires or is terminated. Should any of the signatories of this MOA at any time object in writing to the manner in which the terms of this MOA are implemented, to any action carried out or proposed with respect to implementation of this MOA, or to any document prepared in accordance with and subject to the terms of this MOA, the objecting party shall notify the other signatories of this MOA, the NPS shall notify the ACHP of the subject of the objection, and the signatories shall consult as soon as practicable, with the ACHP if it shall choose to participate in the consultation, to promptly resolve the objection.

2. If the objection is resolved through consultation, the NPS shall notify the other signatories and the ACHP of the terms of the resolution, and the NPS may proceed with the disputed action in accordance with the terms of such resolution.

3. If after initiating consultation, the NPS determines that the objection cannot be resolved through consultation, or if the duration of the consultation has exceeded fifteen (15) days from the commencement of consultation to resolve the dispute, the NPS shall forward all documentation relevant to the objection to the ACHP, including the NPS's proposed resolution of the objection, with the expectation that the ACHP will within thirty (30) days after receipt of such documentation:

- a. Advise the NPS that the ACHP concurs in the NPS's proposed resolution of the objection, whereupon the NPS shall notify the other signatories, and NPS shall resolve the objection accordingly; or
- b. Provide the NPS with recommendations, which the NPS shall take into account in reaching a final decision to resolve the objection. The NPS shall notify all the signatories and the ACHP of its final decision.

If the ACHP or any of the signatories object to the final decision, the objecting party shall notify the other signatories and the ACHP, and the ACHP shall follow the procedures at 36 CFR 800.7(c).

4. The procedures outlined in Stipulations V.1 to V.3, above, shall apply only to the subject of the objection. The NPS's responsibility to carry out all actions under this MOA that are not the subjects of the objection, and which do not foreclose the consideration of alternatives to resolve the objection, shall remain unchanged.

5. At any time during implementation of the terms of this MOA, should a member of the public object to the manner of such implementation, the NPS shall consult with the objecting party and inform the signatories and the ACHP in writing of the objection, the results of the consultation, and the NPS's proposed resolution of the objection. The NPS shall implement its decision should the SHPO and ACHP fail to comment within fifteen (15) days of receipt of the NPS decision, or NPS shall consult further with the SHPO and ACHP, and the objecting party to resolve the objection.

VI. AMENDMENTS

Any signatory party to this MOA may propose that this MOA be amended, whereupon the signatory parties to this MOA shall consult to consider such amendment. This MOA may be amended only upon the written agreement of all the signatory parties. The amendment shall be effective on the date a copy signed by all of the signatories is filed with the ACHP by the NPS.

VII. TERMINATION

1. If any signatory proposes termination of this MOA, the party proposing termination shall, in writing, notify the other signatories to this MOA and the ACHP, explain the reasons for proposing termination, and consult with the other signatories to this MOA and the ACHP if it chooses to participate, to seek alternatives to termination.
2. Should such consultation fail, the signatory proposing termination may terminate this MOA by promptly notifying in writing the other signatories to this MOA and the ACHP. Termination hereunder shall render this MOA without further force or effect.
3. Should this MOA be terminated, the NPS shall consult in accordance with 36 CFR 800.6(b).

VIII. DURATION OF THIS MOA

Unless terminated pursuant to stipulation VIII, the duration of this MOA is five (5) years from the date of its execution. NPS shall initiate consultation with the signatory parties to this MOA approximately one (1) year prior to the expiration date of this MOA to reconsider its terms. Reconsideration may include the continuation or revision of this MOA by amendment or termination.

IX. EFFECTIVE DATE OF THIS MOA

This MOA shall take effect on the date that it has been executed by the NPS and SHPO.

X. ANTI-DEFICIENCY ACT

Any requirement for the payment or obligation of funds by the Government established by the terms of this MOA shall be subject to availability of appropriated funds. No provision in this

MOA shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 USC Section 1341. If the availability of funds and compliance with the Anti-Deficiency Act impair the NPS' ability to perform under this MOA, then the NPS shall consult in accordance with Stipulation VI of this MOA.

EXECUTION of this MOA, its subsequent filing with the ACHP, and implementation of its terms evidence that the NPS has taken into account the effects of this Undertaking on historic properties and has afforded the ACHP and the SHPO an opportunity to comment on the Undertaking and its effect on historic properties.

SIGNATORIES

National Park Service

Bruce M. Powell
FOR

Date: 9/30/2011

Patrick H. Reed
Superintendent, Mammoth Cave National Park

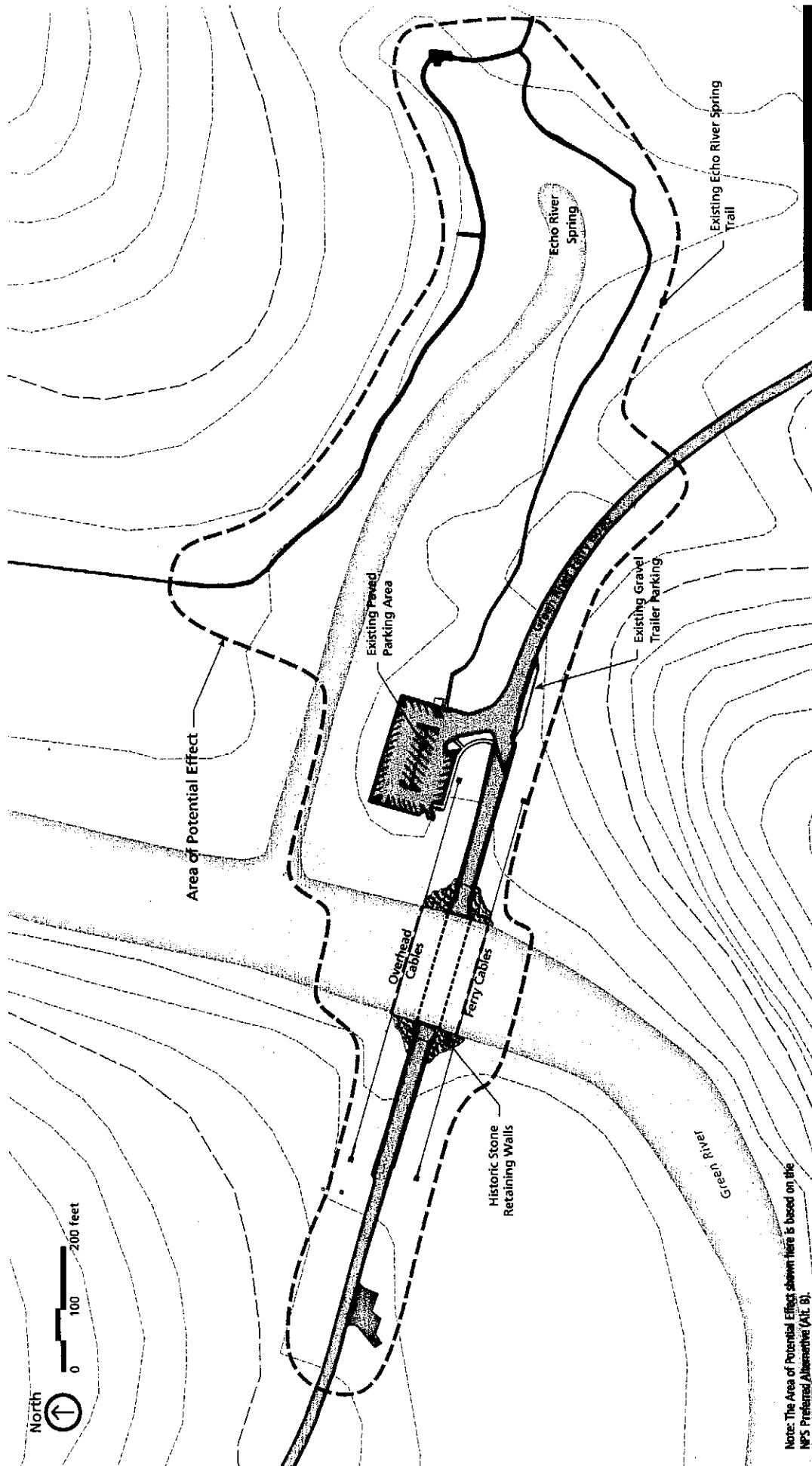
Kentucky State Historic Preservation Officer

Lindy Casebier

Date: 10/21/2011

Mr. Lindy Casebier
Kentucky Heritage Council
Acting Executive Director and State Historic Preservation Officer

State Historic Preservation Officer



ATTACHMENT D

FINDING OF NO SIGNIFICANT IMPACT

**REHABILITATE GREEN RIVER CROSSING
MAMMOTH CAVE NATIONAL PARK**

CONCERN STATEMENTS AND RESPONSES

CONCERN STATEMENTS AND RESPONSES

The Mammoth Cave National Park Environmental Assessment/Assessment of Effect (EA/AoE) was made available for public review and comment during a 30-day period ending March 18, 2011. A total of 13 responses were received: 7 public comments and 6 agency comments. Substantive comments on the EA focused on several topics: control of the Green River water levels, consideration of permanent removal of the ferry, increased socioeconomic analysis, consideration of a bridge across the Green River, impacts on recreational use of the site, and relevant permits. A summary of the public comments received and the park responses to those comments is provided below.

- 1. The NPS should specify why it did not consider building locks or dams to control the water level of the Green River.**

The Green River ferry is located within the upstream end of the pool of Lock and Dam #6. The NPS did not consider building a lock or dam to control water levels of the Green River because such infrastructure development is outside the purpose of the NPS, as authorized by the NPS Organic Act of 1916, which states that the NPS shall preserve natural resources. This type of structure would interfere with natural processes and natural resources in affected sections of the Mammoth Cave system and the Green River, resulting in alternations in hydrology, water quality, and water levels above the structure including cave passages and would directly impact federally listed species and their habitat, as well as other wildlife. The environmental impacts associated with the construction, operation, and continued maintenance of this type of structure would be extensive and inconsistent with the purpose of the project.

- 2. The NPS should consider permanent ferry closure without replacement as an alternative.**

The NPS addresses the importance of the Green River crossing to park visitors and staff as well as local commuters in the EA/AoE under the impact topic of transportation and site access. The Green River Ferry, formerly known as the Mammoth Cave Ferry, provided ferry service for many years prior to the area becoming a national park. The NPS has continuously operated the ferry at this location since that time. The park is committed to providing transportation across Green River at this location and maintaining this historic use and cultural setting. The ferry is critical to the operational efficiency of the park, and for transporting visitors and park staff between the frontcountry developed areas of the park (including the Mammoth Cave Hotel, visitor center, and Historic Entrance to Mammoth Cave) on the south bank of the river and the backcountry trails and campgrounds on the north bank of the river. In addition, the ferry is an important transportation link for providing emergency services to the park and surrounding area. As indicated, the purpose of the project is to improve the safety, reliability, and availability of the Green River crossing. The continued operation of the ferry does not affect the Kentucky Wild River designation.

- 3. The NPS should develop a socioeconomic analysis demonstrating that the Green River crossing is unnecessary.**

The NPS addresses the importance of the Green River crossing to park visitors and staff as well as local commuters in the EA/AoE under the impact topic of

transportation and site access and in the response to Concern Statement #2 above. The purpose of the project is to improve the safety, reliability, and availability of the Green River crossing.

The NPS considered impacts of this project on socioeconomic resources and adjacent lands on page 15 of the EA/AoE; however, because elimination of any method of crossing the Green River at this site would not meet the purpose of this project, impacts of such an action were not considered.

4. The NPS should consider building a bridge across the Green River.

Pages 31-33 of the EA/AoE describe the NPS consideration and the reasons behind the eventual dismissal of the bridge alternatives. The high-level bridge would result in unacceptable levels of impacts to natural and cultural resources and would be economically infeasible. The NPS commissioned designs of low-level bridge options and submitted these drawings to several agencies including the Eastern Federal Lands Highway Division (EFLHD) of the Federal Highway Administration (FHWA) for comments. EFLHD does not support construction of such bridge and described the ways in which such a bridge would not meet FHWA standards for design.

5. The NPS should specify whether or not the improvements to the approach road and ferry ramps would enable loading of bumper pulled horse trailers onto the ferry.

The park does not address issues/concerns with horse trailers separately from issues/concerns with other types of trailers or uses of trailers – all trailers will be covered by the same guidelines. Horse trailers are using and will continue to be able to use the ferry subject to its limitations, safety considerations, and discretion of the ferry operator. The improvements to the roadway approaches will provide a consistent grade; therefore the conditions for loading/unloading vehicles with trailers will be consistent at all water levels in which the ferry can safely operate. The errata to the EA/AoE addresses this issue (see Attachment E).

6. The NPS should remove canoe/boat traffic from the ferry crossing.

Reduction in the potential for conflict between canoe/boat traffic and ferry traffic was a goal of this project. The EA/AoE describes the ways in which the various alternatives would affect recreational visitor use and experience and public safety under those headings. The impacts of the selected alternative specifically are discussed on pages 100 and 104-105. Providing appropriate access for recreational river use is also an objective. This site is one of only three river access sites within the park. The Green River crossing is located approximately 8 miles downstream of the Dennison Ferry Day use Area/canoe access and approximately 12 miles upstream of the Houchin Ferry and is the most used river access site because of its central location.

7. The NPS should acquire relevant state permits prior to construction

The NPS addresses the future compliance and permit needs on page 117 of the EA/AoE. The NPS will coordinate with relevant federal, state, and local agencies to ensure that the project is conducted in compliance with all relevant federal, state, and local laws and regulations.

8. The NPS will require a U. S. Army Corps of Engineers permit for a discharge of dredged or fill material into the Green River.

The NPS addresses the future compliance and permit needs on page 117 of the EA/AoE and in the response to Concern Statement #7 above. The errata to the EA/AoE specifies the amount of dredging expected to take place under the selected alternative and its associated impacts (see Attachment E). Lowering of the ferry ramp (with no extension into the river) is likely to qualify as repair or replacement of an existing structure. Text was also added to the Coordination and Consultation section of the EA/AoE to confirm that the NPS will acquire the relevant permits from the U. S. Army Corps prior to construction, regardless of which statute applies (see Attachment E).

ATTACHMENT E

FINDING OF NO SIGNIFICANT IMPACT

**REHABILITATE GREEN RIVER CROSSING
MAMMOTH CAVE NATIONAL PARK**

ERRATA

ERRATA

The following changes should be incorporated into the Environmental Assessment/Assessment of Effect:

Page 19: Insert the following after the seventh sentence in the last paragraph: All trailers are covered under the same guidelines, and the park does not address issues/concerns with horse trailers separately from issues/concerns with other types of trailers or uses of trailers. Horse trailers are using and will continue to be able to utilize the ferry subject to its limitations, safety considerations and discretion of the ferry operator.

Page 22: Insert the following at the end of the third full paragraph: The improvements to the road approaches will provide a consistent grade; therefore, the conditions for loading/unloading vehicles with trailers will be consistent at all water levels in which the ferry can safely operate.

Page 27: Insert the following after the fourth sentence: Construction of the lowered ramp would require a single dredging of approximately 1,700 cubic feet of sediment. Dewatering of this dredge material would take place by approved methods (this would likely take place in dewatering bags in the parking lot) and would then be disposed of offsite.

Page 74: Revise last sentence of first paragraph to read: "Additionally, some river sediment may be removed (approximately 1,700 cubic feet) for the installation of coffer dams to enable replacement of the lowered ferry ramps on both sides of the river."

Page 117: The list of agencies in the last sentence of the first paragraph should include the USACE.

Page 117: The last paragraph of the first column should be revised to read: "The NPS would acquire the appropriate permit(s) from the USACE for the small amount of dredging that may be required for replacement of the existing ferry apron under the NPS preferred alternative prior to construction."