

## APPENDIX C: ERRATA

### **Sequoia and Kings Canyon National Parks Crystal Cave Redevelopment and Rehabilitation Plan Environmental Assessment January 2017**

The Crystal Cave Redevelopment and Rehabilitation Plan Environmental Assessment (EA) was released for a 30-day public review period from November 4 to December 4, 2015. The park received comments from eight entities during the EA public review period. The National Park Service (NPS) reviewed and considered comments and suggestions, and incorporated several slight modifications into the FONSI and EA, as described in these Errata. Consultation with the State Historic Preservation Officer (SHPO) resulted in revisiting and modifying the cultural resources sections of the EA as described below. None of the commenters provided additional, new, or substantive information that change the determination of effects in the EA. The Errata has two parts:

- Part 1 discusses changes to text in the EA and FONSI.
- Part 2 is a summary of the substantive comments received during public review with NPS responses. Some of these comments resulted in slight modification of the document, such as additions to the mitigation measures table (Appendix B).

#### **ERRATA PART 1 – CHANGES TO TEXT**

In response to public and agency comments, several changes were made to the EA. In reference to the EA, the page number and topic heading are shown in **bold** text. Original text from the EA is identified first to allow for a comparison to the updated text. New information not included in the EA is identified as “additional text.”

##### **Page 16, Elements Common to Action Alternatives, Redesign the tour introduction area**

Original Text: Existing stone walls/benches in this area would be reconfigured to widen the introduction area. New stone walls/benches may be constructed to add additional seating and would be designed to harmonize with the existing historic walls.

Updated Text: Existing stone walls/benches in this area would remain; new stone walls/benches may be constructed to add additional seating and would be designed to harmonize with the existing historic walls.

##### **Page 22, Alternative C, Demolish existing historic comfort station**

Original Text: The historic stairs leading from the parking lot to the comfort station and concrete footings would also be removed (also an adverse effect to resources determined to be contributors within the proposed historic district).

Updated Text: The historic stairs leading from the parking lot to the comfort station and concrete footings would also be removed.

##### **Page 23, Mitigation Measures, Protect Cultural Resources**

Additional Text:

- Prior to establishing material drop zones and/or a helispot (s), areas will be surveyed for cultural resources.
- All rehabilitation and stabilization measures to the historic comfort station will adhere to the *Secretary of Interior’s Standards for Treatment of Historic Properties*.

**Page 23-24, Mitigation Measures, Protect Water Resources and Wetland Values section**

Original Text: All equipment that could come in contact with a naturally occurring waterbody or potentially enter a storm drain system shall be: a) thoroughly cleaned of soil/mud and all organic matter by rinsing the equipment within a containment barrier constructed at least 100 feet of any waterbody; b) disinfected with a chlorine solution (one part bleach to 32 parts water or stronger) followed by a thorough rinse with clean water, and c) soil/mud, organic debris and cleaning solution collected and removed from the parks.

Updated Text: All equipment that could come in contact with a naturally occurring waterbody or potentially enter a storm drain system shall be thoroughly cleaned of soil/mud and all organic matter by rinsing the equipment within a containment barrier constructed at least 100 feet from any waterbody.

Additional Text:

- Implement a stormwater pollution prevention plan to prevent erosion and runoff.

**Page 24, Mitigation Measures, Protect Cave Resources**

Original Text: Runoff from rains on the newly laid parking lot and trail asphalt should be mitigated with hydrocarbon traps and filters.

Updated Text: Runoff from rains on the newly laid parking lot and trail asphalt should be mitigated with hydrocarbon traps and filters, where feasible.

Additional Text:

- Concrete will be mixed in small batches and will be poured during dry weather to minimize down-gradient transport of toxic byproducts produced during placement and curing.
- Any runoff associated with freshly placed concrete will be contained.
- If viable, hydrocarbon filters will be placed at existing outlets of the parking lot to capture any leaks from vehicles.
- Paving materials of the parking area will be selected to minimize environmental impacts.
- Monitoring efforts will be commensurate with potential environmental impacts related to paving activities.
- For the kiosk site, which will require the excavation of a previously undisturbed hillside, any voids encountered during excavation will trigger an evaluation prior to proceeding with the project work.
- Site-specific design for new buildings in the upper Crystal Cave area (kiosk and vault toilets) will be reviewed after geotechnical investigations to ensure that work will not affect the underlying cave resources.

**Page 24, Mitigation Measures, Protect Native Wildlife**

Additional Text:

- Project work in the Crystal Cave entrance area will be scheduled in time periods to avoid impacting species of interest such as bats and nesting canyon wrens.
- Project work will be scheduled to avoid impacts to nesting migratory birds. Prior to removing vegetation, bird surveys will be conducted to determine if nests are present. If nests are present, vegetation removal will be delayed until after nesting season.

**Page 25, Mitigation Measures, Protect Native Vegetation and Soils**

Original Text: Hand-dig around and under high value trees at the canopy drip line or further away.

Updated Text: Where possible, avoid digging or excavating within canopy drip line of trees. If not feasible, hand dig around or under roots greater than 2” diameter.

**Page 26, Mitigation Measures, Facility Design and Construction Considerations**

Original Text: Sustainable design principles will be used that meet all applicable Uniform Building Codes, National Fire Protection Association codes, and Occupational Safety and Health Administration requirements.

Updated Text: Sustainable design principles will be used that meet all applicable California building codes, National Fire Protection Association codes, and Occupational Safety and Health Administration requirements.

**Page 30, Cultural Resources, Historic Resources, Proposed Crystal Cave Historic District  
Determination of Eligibility**

Original Text: In 2010-2011, a draft Determination of Eligibility (DOE) for the proposed *Crystal Cave Historic District* (NPS 2012) identified 12 contributing resources eligible for listing on the National Register of Historic Places (NRHP), and 10 non-contributing resources. The period of significance for the Crystal Cave area is identified as 1938 to 1941, with other significant dates of 1918 and 1963 to 1965. The National Register-contributing resources include one building (Mission 66-era comfort station), four sites (Crystal Cave Road, Crystal Cave parking area, Crystal Cave Access trail, and Crystal Cave interior trail), and seven structures (Cascade Creek bridge, oval-shaped seating area, dry-stacked stone walls, wet-rubble walls and curbs, access trail concrete staircases, mortared stone walls at cave’s mouth, and the Spider Web Gate). The non-contributing resources include two buildings (concrete block powerhouse and ticket booth/bookstore), one site (a short, secondary trail in the lower Crystal Cave area), and seven structures (Marble Fork Bridge, solar panel array, generator shelter, chain-link fencing, information kiosk, and a former generator room and comfort station).

Updated Text: In 2010-2011, a draft Determination of Eligibility (DOE) for the proposed *Crystal Cave Historic District* (NPS 2012) identified contributing resources eligible for listing on the National Register of Historic Places (NRHP), and non-contributing resources. In 2016, the DOE was revisited, and the 2012 draft nomination was modified to better reflect National Register guidelines and clarify the period of significance. The period of significance for the Crystal Cave area is identified as 1933-1942, corresponding to the Civilian Conservation Corps (CCC) and New Deal development; and 1963-1965, reflecting the Accelerated Works Program development. The National Register-contributing resources include one building (comfort station) and six structures (Crystal Cave Road, Crystal Cave parking area, Crystal Cave access trail, non-functional drinking fountain, Crystal Cave interior trail, and the Spiderweb Gate). The non-contributing resources include two buildings (concrete block powerhouse and ticket booth/bookstore).

**Page 30, Cultural Resources, Cultural Landscape**

Original Text: The draft DOE describes the proposed *Crystal Cave Historic District* as locally significant under National Register Criterion A, “associated with events that have made a significant contribution to the broad patterns of our history,” because it is associated with the broad pattern of the federal government’s response to the Great Depression, during the Franklin Roosevelt Administration. The primary area of significance is the cave’s association with the work of the CCC in Sequoia National Park. Crystal Cave is also significant under the category of Recreation, specifically, Tourism, because its development was undertaken solely to provide access to the cave for the general public. The proposed

*Crystal Cave Historic District* is also significant in the area of Conservation because the NPS sought to provide accessibility to the cave while maintaining the integrity of the cave's associated natural resources.

Updated Text: The draft DOEs (NPS 2012; NPS 2016) describe the proposed *Crystal Cave Historic District* as locally significant under National Register Criterion A, "associated with events that have made a significant contribution to the broad patterns of our history," in the category of government/politics for its association with two federal government stimulus programs – the Emergency Conservation Work (ECW) program and the Accelerated Public Works Program. Crystal Cave is also significant under the category of Recreation for its association with recreational development in Sequoia National Park. A lack of funds had kept the National Park Service from developing the infrastructure to allow safe public access to the cave before President Franklin D. Roosevelt established the ECW program as part of his New Deal agenda. With the manpower and funding provided by the ECW program, CCC crews constructed an access road, parking area, access trail, and cave interior trail. Crystal Cave was part of a larger development effort at Sequoia (and within the National Park system as a whole) during this time, and it fulfilled the park's goal of developing new attractions in an effort to reduce congestion in the Giant Forest area. This original infrastructure was improved between 1963 and 1965 with funding from the Accelerated Public Works program, an \$850 million Kennedy administration program meant to boost employment and fund construction of public works projects on federal lands. The first period of significance is 1933 to 1942; these dates correspond to the New Deal era and the CCC program. The second period of significance, 1963 to 1965, corresponds with the years of the Accelerated Public Works program, when crews made safety improvements to the original infrastructure.

### **Page 37, Cultural Resources, Historic Structures**

Original Text: Of the 12 identified contributing resources eligible for listing on the National Register of Historic Places, the following will not be affected by any alternative and will not be further analyzed: the Crystal Cave Road, the Crystal Cave interior trail, and the Spider Web gate.

The National Register-contributing resources that have the potential to be affected include: the Mission 66-era comfort station, Crystal Cave parking area, Crystal Cave Access trail, Cascade Creek bridge, oval-shaped seating area, dry-stacked stone walls, wet-rubble walls and curbs, access trail concrete staircases, and the mortared stone walls at cave's mouth. Potential impacts to these contributing resources are evaluated based on changes to character-defining features of the resources and the ability of each alternative to maintain the integrity of the proposed *Crystal Cave Historic District*. This approach is derived from both the *Secretary of the Interior's Standards for Rehabilitation of Historic Buildings* as well as the regulations of the ACHP implementing the provisions of Section 106 of the *National Historic Preservation Act*.

Updated Text: The National Register-contributing resources that have the potential to be affected by project work include: the Mission 66-era comfort station, Crystal Cave parking area, Crystal Cave access trail, and the Crystal Cave interior trail. Potential impacts to these contributing resources are evaluated based on changes to character-defining features of the resources and the ability of each alternative to maintain the integrity of the proposed *Crystal Cave Historic District*. This approach is derived from both the *Secretary of the Interior's Standards for Rehabilitation of Historic Buildings* as well as the regulations of the ACHP implementing the provisions of Section 106 of the *National Historic Preservation Act*.

### **Page 39-40, Impacts of Alternative B (NPS Preferred), Historic Resources**

Original Text: Under alternative B, the following National Register-contributing resources would be affected: Crystal Cave parking area, Mission 66-era comfort station and stairs, Crystal Cave access trail (including retaining walls, staircases, and railings), Cascade Creek Bridge, oval-shaped seating area, and the mortared stone walls at the cave's entrance.

All work activities on National Register-eligible contributing resources would conform to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (the *Standards*). Some of the contributing resources are deteriorating and in poor condition; project work would generally result in long-term beneficial effects by rehabilitating the resources to good condition.

**Table 1. Assessment of Effect for Cultural Resources**

<b>Contributing Resource</b>	<b>Work Item</b>	<b>Effect</b>
Parking area	Grinding and recycling of existing 50,400 square feet of asphalt surface, grading and leveling the parking area, adding base material, installing a new tread surface, and striping the surface.	Because work would occur within the existing footprint and there would be no change to the configuration of the teardrop-shaped parking lot or the rocky vegetated outcrop in the middle of the parking area, there would be no adverse effect to this resource.
Mission 66-era comfort station	The historic comfort station would be adaptively reused for the storage of supplies, merchandise, and EMS equipment. Plumbing fixtures and partitions would be removed from the interior of the building, along with all above-ground waste disposal infrastructure.	Because the exterior appearance of the building would be preserved and structural and architectural components would be stabilized and rehabilitated per the <i>Standards</i> and in accordance with the <i>2008 Nationwide Programmatic Agreement</i> , there would be no adverse effect to this resource.
Comfort station staircase	The three short flights of contributing concrete steps to the comfort station would be rehabilitated per the Secretary of Interior's Standards.	Because the appearance and function of the steps would be preserved per the <i>Standards</i> as well as the <i>2013 CA Historical Building Code</i> and in accordance with the <i>2008 Nationwide Programmatic Agreement</i> , there would be no adverse effects to this resource.
Access trail	Grinding and removing excess pavement and resurfacing the trail to the original elevation. Approximately 8,000 square feet of old asphalt and concrete mix tread surface would be removed and a new concrete surface would be installed.  The work would occur mostly within the existing footprint; wider areas would be used for interpretive opportunities (wayside exhibits) and benches.	Because the trail would remain in its current alignment, and rehabilitated in accordance with the <i>Standards</i> , there would be no adverse effect
Retaining walls and curbs	Repoint mortar, regrout, and repair of over 2,000 square feet of the trail's historic retaining walls (dry-stacked stone walls, wet-rubble walls and curbs) with in-kind materials.	Walls would be restored to their original condition per guidance from the <i>Standards</i> ; therefore there would be no adverse effect.

<b>Contributing Resource</b>	<b>Work Item</b>	<b>Effect</b>
Concrete staircases and safety railing	The existing staircases and safety railings would be rehabilitated and would remain in place.	The existing staircases and railings would be restored to their original condition per guidance from <i>the Standards</i> ; therefore there would be no adverse effect.
Cascade Creek bridge	The bridge abutments would be rehabilitated using in kind materials.	The bridge abutments would be restored to their original condition per guidance from <i>the Standards</i> ; therefore there would be no adverse effect.
Oval shaped seating area	This area would be hardened and expanded to accommodate more people. Existing contributing stone walls/benches would be rehabilitated and be reconfigured to widen the area. New stone walls/benches would be constructed to provide more seating and would utilize in-kind materials to resemble the existing historic walls.	The existing walls on a portion of the seating area would be rebuilt to reconfigure the area, and additional walls would be added to complement the existing historic walls. There would be a modification to this structure, but the appearance and the characteristics of this resource would remain similar to existing conditions, therefore there would be no adverse effect.
Cave entrance area (exterior)	The mortared stone walls outside the mouth of the Crystal Cave entrance area would be stabilized.	The appearance and characteristics of the walls would not change; therefore there is no adverse effect.
Cave entrance area (interior)	The concrete and asphalt surfaces would be removed and replaced with a concrete surface within the existing footprint.	The appearance and characteristics of the cave entrance area would not change; therefore there is no adverse effect.

Updated Text: Under alternative B, the following National Register-contributing resources would be affected: Crystal Cave parking area, Mission 66-era comfort station, Crystal Cave access trail, and the Crystal Cave interior trail.

All work activities on National Register-eligible contributing resources would conform to the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (the *Standards*). Some of the contributing resources are deteriorating and in poor condition; project work would generally result in long-term beneficial effects by rehabilitating the resources to good condition.

**Table 2. Assessment of Effect for Cultural Resources**

<b>Contributing Resource</b>	<b>Work Item</b>	<b>Effect</b>
Parking area	Grinding and recycling of existing 50,400 square feet of asphalt surface, grading and leveling the parking area, adding base material, installing a new tread surface, and striping the surface.	Because work would occur within the existing footprint and there would be no change to the configuration of the teardrop-shaped parking lot or the rocky vegetated outcrop in the middle of the parking area, there would be no adverse effect to this resource.

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<b>Contributing Resource</b>	<b>Work Item</b>	<b>Effect</b>
Mission 66-era comfort station	The historic comfort station would be adaptively reused for the storage of supplies, merchandise, and EMS equipment. Plumbing fixtures and partitions would be removed from the interior of the building, along with all above-ground waste disposal infrastructure.	Because the exterior appearance of the building would be preserved and structural and architectural components would be stabilized and rehabilitated per the <i>Standards</i> and in accordance with the 2008 <i>Nationwide Programmatic Agreement</i> , there would be no adverse effect to this resource.
	The three short flights of concrete steps to the comfort station would be rehabilitated per the Secretary of Interior's Standards.	Because the appearance and function of the steps would be preserved per the <i>Standards</i> as well as the 2013 <i>CA Historical Building Code</i> and in accordance with the 2008 <i>Nationwide Programmatic Agreement</i> , there would be no adverse effects to this resource.
Crystal Cave access trail	Grinding and removing excess pavement and resurfacing the trail to the original elevation. Approximately 8,000 square feet of old asphalt and concrete mix tread surface would be removed and a new concrete surface would be installed.  The work would occur mostly within the existing footprint; wider areas would be used for interpretive opportunities (wayside exhibits) and benches.	Because the trail would remain in its current alignment, and rehabilitated in accordance with the <i>Standards</i> , there would be no adverse effect.
	Repoint mortar, regROUT, and repair of over 2,000 square feet of the trail's historic retaining walls with in-kind materials.	Walls would be restored to their original condition per guidance from <i>the Standards</i> , therefore there would be no adverse effect.
	The existing staircases and safety railings would be rehabilitated and would remain in place.	The existing staircases and railings would be restored to their original condition per guidance from <i>the Standards</i> , therefore there would be no adverse effect.
	The Cascade Creek bridge abutments would be rehabilitated using in kind materials.	The bridge abutments would be restored to their original condition per guidance from <i>the Standards</i> , therefore there would be no adverse effect.
	The discontinuous oval shaped seating area would be hardened and expanded to accommodate more people. Existing stone walls/benches would remain; new	The existing walls would be rehabilitated; and additional walls would be added to complement the existing historic walls. The appearance and the characteristics of this resource would remain similar to existing

<b>Contributing Resource</b>	<b>Work Item</b>	<b>Effect</b>
	stone walls/benches would be constructed to provide more seating and would utilize in-kind materials to resemble the existing historic walls.	conditions, therefore, there would be no adverse effect.
	The mortared stone walls outside the mouth of the Crystal Cave entrance area would be stabilized.	The appearance and characteristics of the walls would not change; therefore there is no adverse effect.
Crystal Cave interior trail	The concrete and asphalt surfaces in the entrance area (between the cave dripline and the Spiderweb Gate would be removed and replaced with a concrete surface within the existing footprint.	The appearance and characteristics of the cave entrance area would not change; therefore there is no adverse effect.

**Page 40-41, Impacts of Alternative B (NPS Preferred), Cultural Landscapes**

Original Text: The non-contributing pergola in the lower Crystal Cave area and portions of the non-contributing chain-link fence along the trail would be removed, resulting in a beneficial effect on the cultural landscape by restoring conditions more similar to the period of significance.

Updated Text: The pergola in the lower Crystal Cave area would be removed, and portions of the chain-link fence along the trail may be removed, resulting in a beneficial effect on the cultural landscape by restoring conditions more similar to the period of significance.

**Page 41, Impacts of Alternative C, Cultural Landscapes**

Original Text: The contemporary non-contributing pergola in the lower Crystal Cave area and portions of the non-contributing chain link fence along the trail would be removed.

Updated Text: The contemporary pergola in the lower Crystal Cave area would be removed, and portions of the chain link fence along the trail may be removed.

**Page 55, References**

Additional Text:

Federal Cave Resources Protection Act of 1988, (16 USC 4301-4310; PL 100-691)

**Page 56, Selected Bibliography**

Additional Text:

2016. *National Register of Historic Places Registration Form: Crystal Cave Historic District*. Sequoia and Kings Canyon National Parks.



## **ERRATA PART 2 – EA SUBSTANTIVE COMMENTS AND NPS RESPONSES**

This section summarizes the substantive comments that were received during the public review period of the EA. It does not include the entire correspondence text from any individual letter, but captures the primary concerns in “concern statements.” Concern statements are italicized below; the NPS responses are in plain text. All correspondence received by the NPS is contained in the project’s decision file located at Sequoia and Kings Canyon National Parks.

*Concern Statement: A few commenters had concerns about the footbridge over Cascade Creek, if it will be retained or replaced, and how it would be maintained in the future. In particular, there was a concern about the use of preservatives to treat wood used for trail bridges within the parks.*

- Response: The Cascade Creek Bridge is discussed on page 16 of the EA. The bridge structure is in good condition; the abutments would be repaired and stabilized as part of the trail work. The project work would occur during low water periods and no instream work is planned. Appropriate permits would be obtained from the Army Corps of Engineers and the State of California prior to project work, and best management practices would be used to prevent impacts to the creek.

For the past 20 years, we have not used wood treated with preservatives on any trail bridges in the parks. Prior to that, we did use pressure-treated lumber for some park projects, but the treatment was applied prior to purchase. Currently there are no wood treatment products that are wholly “environmentally friendly” and we have found that using natural wood without treatment is more cost effective in the long term.

Because of the sensitive nature of the area, if we were to replace the Cascade Bridge in the future, we would complete a separate environmental analysis, which would consider the use of alternative materials, such as recycled plastic-based “lumber,” instead of wood.

*Concern Statement: Maintain the picnic area near the parking lot and ensure it is safe for children.*

- Response: The picnic area would be maintained under all alternatives. Visitor and employee safety are a primary concern. We will evaluate the design and delineation of the picnic area as we further refine the site plan for the area.

*Concern Statement: Build a real visitor reception center.*

- Response: The NPS is proposing to improve the visitor reception area under both action alternatives as part of this plan.

*Concern Statement: Redesign the trail so it supports the use of strollers.*

- Response: Strollers are currently not recommended on the trail to Crystal Cave. The trail is steep and narrow, and the terrain in the area necessitates stairs at several locations along the trail. Although the trail, including a portion of the cave entrance, will be rehabilitated making the travel way smoother, the existing historic alignment and grades will remain. As a result, the stairs along the trail alignment will remain, making the trail unsuitable for strollers. Also, strollers are not allowed in the cave itself and this will not change under the current plan.

The NPS did consider upgrading the trail to improve accessibility, as described on page 26 of the EA, however this option was dismissed due to excessive cost, constructability challenges, and unacceptable resource impacts.

*Concern Statement: Develop a water supply and system to support the operations at Crystal Cave.*

- Response: The development of a water supply is infeasible because there is no viable year-round surface water supply and the local hydrogeology is not conducive to ground water supply.

*Concern Statement: Consider an alternative to remove all the buildings and fully restore the Crystal Cave area.*

- Response: The Crystal Cave area is one of the most visited areas in Sequoia and Kings Canyon National Parks. It is the only cave open for guided public cave tours within the parks and provides visitors with a unique opportunity to explore a wild cave. Crystal Cave has been a primary visitor attraction since 1940 when the cave was officially opened to the public. The parks' General Management Plan (2007) selected alternative called for continued visitor services in this area. It is an important visitor destination and there is no plan to remove all of the buildings and to fully restore the area.

*Concern Statement: A visitor center is not needed at Crystal Cave.*

- Response: The NPS does not propose to construct a visitor center at Crystal Cave. The proposed action includes the construction of a small reception area and visitor kiosk to provide more information about the cave resources, to improve the visitor experience, and to allow for the effective administration of the area.

*Concern Statement: Provide information on the water system and if it is going to be removed or retained.*

- Response: The EA does not include a final determination on whether the water system will remain in place or be removed. Currently the water system does not support the summer operations of the cave, but the water is used for administrative operations, such as cleaning. If the water system is removed, the above ground portions of the system would be removed and area rehabilitated. The underground water system would be abandoned in-place and cut and capped at the ground surface. Abandonment of underground infrastructure is common practice. In ecologically sensitive areas, the removal of underground infrastructure is likely to cause short and long term undesirable effects that outweigh the benefit of removal. Furthermore, remote locations such as Crystal Cave make removal of underground infrastructure logistically challenging and costly. A separate site-specific environmental analysis would be completed prior to any removal activities.

*Concern Statement: Consider an alternative to remove all buildings and provide only a small vault toilet and picnic area.*

- Response: The buildings, as described in the EA, are necessary to support cave visitation. Without oversight of the cave, including guided tours and educational opportunities, cave resources would be at risk. As previously stated, this is the only cave within the parks open to public tours, and it is extremely popular. Thus, it is important to protect this resource for future generations. The administrative facility and educational displays help ensure this protection.

The installation of two vault toilets is included in the proposed action. The toilets will be of sufficient size to support Americans with Disabilities Act (ADA) standards for accessibility. A small picnic area will also be retained in the area.

*Concern Statement: Consider impacts on the Sequoia Cave Isopod and other cave species in your analysis.*

- Response: We acknowledge that these species occur in Crystal Cave. While rare, *Bownanacellus* have been identified in subterranean environments throughout the upper North Fork of the Kaweah River and, as such, have persisted despite being exposed to large natural variations in flow and sediment regimes. Sediment generated from construction will be retained with silt fences. Concrete will be poured in small batches during dry weather to minimize the down-gradient transport of toxic byproduct produced during curing, and paving materials for the parking area will be selected to minimize environmental impacts. If viable, hydrocarbon filters will be placed at outlets to capture any leaks from vehicles. We have evaluated the effects of these proposed actions and alternatives and determined that there is no potential for significant impact to these species,

thus they need not be addressed in the EA per the National Environmental Policy Act (NEPA) and NPS policy.

*Concern Statement: Impacts to subterranean cave resources from the use of heavy equipment to reconfigure and rehabilitate the parking lot have not been adequately addressed.*

- Response: There are three locations where we propose to go below the current grade of the parking lot: two vault toilets would be installed in the lot, and a new kiosk would be constructed adjacent to the parking lot near the existing trailhead. Reconfiguring and repaving the parking lot would occur on the existing grade.

There is little peer-reviewed information concerning ground motion generated during construction activity; however, the available literature indicates that construction-induced ground motion travels primarily as surface waves as opposed to ground waves, has limited peak particle velocity, and attenuates within a few meters of the source due to geometrical spreading.

Current and historic site plans indicate that the vault toilets would be placed in fill material that was generated during initial site development. The NPS did an initial geological investigation and found that the surface soil conditions, to the depth that the vault toilets would be installed, is fill material comprised of some soil and mostly large boulders. For the kiosk site, which would require the excavation of a previously undisturbed hillside, ground-penetrating radar data would be acquired to assist in kiosk location. Any voids encountered during excavation would trigger an evaluation of potential impacts to cave resources, prior to proceeding with project work.

*Concern Statement: The EA does not mention or cite the numerous studies and research that have occurred in the Crystal Cave area.*

- Response: Per the NEPA and NPS policies, an EA is meant to be a "concise public document" that "briefly provides sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact" (40 CFR 1508.9 (a)). The Department of the Interior (DOI) NEPA regulations state that for an EA, "the level of detail and depth of impact analysis should normally be limited to the minimum needed to determine whether there would be significant environmental effects."

While construction would occur near cave and water resources, all work would be restricted to the surface, and there is little risk of contamination reaching the cave or water environments. Thus when we evaluated the potential resources at risk, at described starting on page 5 of the EA, cave-related resources and water resources were not included in the analysis because there is no potential for significant impact.

*Concern Statement: More information should be provided about the cave resources in the area.*

- Response: Per the NEPA and NPS policies, an EA is meant to be a "concise public document" that "briefly provides sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact" (40 CFR 1508.9 (a)). The Department of the Interior (DOI) NEPA regulations state that for an EA, "the level of detail and depth of impact analysis should normally be limited to the minimum needed to determine whether there would be significant environmental effects."

We acknowledge that the area around Crystal Cave is a known karst area. This was considered during the development of alternatives and best management practices.

*Concern Statement: Consider in the cumulative effects analysis the impacts on the area's resources from parked vehicles.*

- Response: The selection of paving material would be made based on state of the art and sound engineering planning if and when funding is available. Hydrocarbon filters at existing outlets would be considered if viable.

*Concern Statement: The Federal Cave Resources Protection Act is important and should be discussed in the EA.*

- Response: An EA is meant to be a "concise public document" that "briefly provides sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact" (40 CFR 1508.9 (a)). The Department of the Interior (DOI) NEPA regulations state that for an EA, "the level of detail and depth of impact analysis should normally be limited to the minimum needed to determine whether there would be significant environmental effects" (46.310(e)).

The 2015 NPS NEPA Handbook encourages concise and succinct public documents and does not require that relevant laws, policies, etc. be included in the EA. While we did not include all of the relevant laws, policies, and planning documents within the EA, we did include a separate document on the public PEPC site entitled "Related Laws, Legislation, and Policy." This document includes a discussion of the Federal Cave Resources Protection Act, along with other relevant laws, legislation, and policies. The Federal Cave Resources Protection Act was reviewed during the development of the EA. It has been included on the *References* list on page 55 of the EA.

*Concern Statement: Mitigations to address parking lot run-off during and after construction should be explicitly addressed.*

- Response: The grade of the existing parking lot would not change. However, the selection of paving material would be made based on state of the art and sound engineering planning if and when funding is available. Hydrocarbon filters at existing outlets would be considered if viable.

During construction, standard best management practices to prevent erosion and runoff would be employed, including but not limited to implementing a stormwater pollution prevention plan. We would work with our natural resources staff to determine the best monitoring methods to ensure the protection of cave resources during construction.

*Concern Statement: Specific mitigations should be included to prevent impacts to cave and water resources during and after project work.*

- Response: As stated in the EA and decision document, we would implement best management practices during concrete placement and curing. For example, concrete would be mixed in small batches and not poured during rainfall. Containment of runoff from the freshly placed concrete would be standard practice. Parking lot paving material would be selected with emphases on reducing environmental impacts. Monitoring efforts would occur during project implementation, commensurate with potential environmental impacts related to paving activities.

*Concern Statement: Commenter expressed concern over mitigation related to water resources and wetland values and the use of a chlorine solution for disinfection.*

- Response: Our primary concern is with contractor equipment coming into the parks and ensuring that non-native plants are not introduced or spread throughout the parks. Best management practices would be adhered to, including pressure washing equipment to remove all dirt and plant parts before entering the park the first time. A project manager would inspect equipment for

compliance prior to entering the park and reject equipment that is not adequately clean. For this project, equipment inspection would take place in established locations near entrance stations and in the motor pool parking lots. These areas have been recognized as particularly suitable for handling runoff. The EA did mention the use of chlorine as a potential disinfecting solution, however, we no longer anticipate the need for this and have removed it as a mitigation requirement (Appendix B).

As necessary, appropriate permits (section 404 permit and 401 notification or certification) would be acquired prior to work that could impact wetlands or waterways. Any additional stipulations identified in these permits would be implemented.

*Concern Statement: The EA should discuss in more detail information related to Crystal Cave tours, including tour capacities, types, and tour management.*

- Response: The EA does not discuss the day-to-day tour operations at Crystal Cave but focuses on the development in the area. Tour operations are evaluated yearly as part of the parks' Cave Management Plan and agreement between the NPS and Sequoia Parks Conservancy, and modified as needed to provide an exceptional visitor experience and to protect cave resources.

*Concern Statement: The lighting and cave illumination should be repaired.*

- Response: The lighting and illumination in Crystal Cave was replaced by a photovoltaic system in 2009. Maintenance of the system occurs annually.

*Concern Statement: The Crystal Cave Road does not need to be repaired or improved.*

- Response: The Federal Highway Administration has worked with park staff to evaluate the Crystal Cave access road and determine what repairs are needed in the future. The alternatives for road repairs and upgrades would be considered in a future environmental analysis and is outside the scope of this plan.

*Concern Statement: Construction noise would cause impacts on the natural soundscape of the area, therefore I prefer the no action alternative.*

- Response: All major construction/rehabilitation activities associated with project implementation, excluding some portions of the trail rehabilitation, would occur during times of the year when Crystal Cave is closed to the public. Thus the public would likely not hear any noise generated from the proposed project. The noise generated from project activities would be temporary, limited to the immediate area, and would not cause long-term adverse effects to the natural soundscape of the area.

*Concern Statement: The project is located near wilderness and wilderness impacts should be discussed.*

- Response: The proposed project would occur entirely outside of designated, proposed, or potential wilderness. There is no potential for impacts on wilderness from the proposed project (see page 7 of the EA), thus it is not necessary to fully evaluate this topic in the EA.