

Chapter 5. Environmental Consequences

Introduction

1 This “Environmental Consequences” chapter
 2 analyzes both beneficial and adverse impacts
 3 that would result from implementing either
 4 of the alternatives considered in this CLR/
 5 EA. This chapter also includes methods used
 6 to analyze direct, indirect, and cumulative
 7 impacts. Impacts are evaluated based on
 8 context, duration, and whether they are
 9 direct, indirect, or cumulative. A summary
 10 of the environmental consequences for
 11 each alternative is provided in “Chapter
 12 4. Treatment Alternatives.” The resource
 13 topics presented in this chapter and the
 14 organization of the topics correspond to the
 15 resource discussions contained in “Chapter 3:
 16 Existing Condition and Landscape Analysis.”
 17
 18 This CLR/EA assesses whether significant
 19 impacts would occur as a result of
 20 the proposed action, resulting in an
 21 environmental impact statement, or whether
 22 a finding of no significant impact is the
 23 appropriate decision document.

General Methods

1 This section describes the environmental
 2 impacts, including direct, indirect, and
 3 cumulative impacts, and their significance
 4 for each alternative. Overall, the NPS based
 5 the impact analyses and conclusions on the
 6 review of existing literature and park studies,
 7 information provided by experts within the
 8 park and other NPS personnel, other agencies,
 9 professional judgment and park staff insights,
 10 and public input.

11
 12 Direct, indirect, and cumulative effects are
 13 analyzed for each resource topic carried
 14 forward, which requires considerations of
 15 impact type, context, and duration as defined
 16 below:

- 17
- 18 • **Type** describes the classification of the
 19 impact as either beneficial or adverse,
 20 direct, or indirect:
 21
 - 22 ° *Beneficial*: A positive change in
 23 the condition or appearance of the
 24 resource or a change that moves the
 25 resource toward a desired condition.
 26
 - 27 ° *Adverse*: A change that moves the
 28 resource away from a desired
 29 condition or detracts from its
 30 appearance or condition.
 31
 - 32 ° *Direct*: An effect that is caused by the
 33 action and occurs in the same time
 34 and place.
 35
 - 36 ° *Indirect*: An effect that is caused
 37 by the action but is later in time or
 38 farther removed in distance, but is
 39 still reasonably foreseeable.
 40
- 41 • **Context** describes the area or location
 42 in which the impact would occur. Effects
 43 may be site-specific, local, regional, or
 44 even broader.
 45

Cumulative Impacts

- **Duration** describes the length of time an effect would occur – either short-term or long-term:

- *Short-term* impacts generally last only during construction, and the resources resume their preconstruction conditions following construction.

- *Long-term* impacts last beyond the construction period, and the resources may not resume their preconstruction conditions for a longer period following construction, or may never return to preconstruction conditions.

Cumulative impacts (or effects) are defined as “the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time. The CEQ regulations that implement NEPA require assessment of cumulative impacts in the decision-making process for federal projects.

Methods for Assessing Cumulative Impacts

Cumulative impacts were determined by combining the impacts of the action alternative and the no action alternative with other past, present, and reasonably foreseeable future actions. Past actions include activities that influenced and affected the current conditions of the environment near the project area. Ongoing or reasonably foreseeable future projects near the park or the surrounding region might contribute to cumulative impacts. The geographic scope of the analysis includes actions in the project area as well as other actions in the park or surrounding lands, including the town of Van Buren and Carter County, where overlapping resource impacts are possible. The temporal scope includes actions within a range of approximately 10 years.

Once identified, past, present, and reasonably foreseeable future actions were then assessed in conjunction with the impacts of the alternatives to determine if they would have any added adverse or beneficial impacts on a particular resource or visitor use. The impacts of past, present, and reasonably

Cultural Resources – Cultural Landscapes and Archeological Sites

1 foreseeable future actions vary for each
2 resource. Cumulative impacts are considered
3 for each alternative and are presented in the
4 environmental consequences discussion for
5 each impact topic.

6 **Past, Present, and Reasonably Foreseeable** 7 **Future Actions**

8
9
10 The following past, present, and reasonably
11 foreseeable future actions are relevant to
12 the analysis of the impacts on resources and
13 values that would result from the alternatives
14 and are based on actions described in the
15 park's GMP and from internal scoping.

16 Past, present, and reasonably foreseeable
17 management actions of the park include:

- 18
- 19 • Replace Failing Non-Sustainable Utilities
- 20 for Dining Lodge (HS-422) and Cabins.
- 21 • Restore the Landscapes of Big Spring
- 22 Historic District.
- 23 • Rehabilitate OZAR's Sole Concession-
- 24 Run Historic District Lodging Cabins and
- 25 Dining Lodge.
- 26 • Roads and Trails Master Plan (to
- 27 be completed in 2017-2018). CLR
- 28 recommendations should reflect the
- 29 plan, but cannot be part of the no action
- 30 alternative.
- 31 • The new Big Spring Branch Vehicular
- 32 Bridge is to be constructed in 2017.
- 33 • Big Spring Pavilion (HS-425) is
- 34 undergoing restoration.
- 35 • The Latrine (HS-423) has an upcoming
- 36 project to repair the railings.

37
38 No other reasonably foreseeable future
39 actions were identified in the vicinity of the
40 project area that would potentially contribute
41 to cumulative impacts.

1 **Methodology**

2
3 Potential effects on cultural resources
4 were evaluated based on the presence
5 and condition of existing aboveground
6 and belowground features within the
7 park units as described in "Chapter 3:
8 Existing Condition and Landscape Analysis"
9 Determination of impacts was based on the
10 expected disturbance to cultural resources,
11 professional judgment, and experience with
12 previous projects.

13 **No Action Alternative**

14 Direct and Indirect Impacts of the Alternative.

15
16 Under the no action alternative, park
17 management practices would focus
18 on maintaining contributing and
19 noncontributing features that would require
20 new ground disturbance. Because these
21 actions have the potential to impact cultural
22 resources, the no action alternative would
23 have local short-term adverse impacts and
24 long-term beneficial impacts on cultural
25 resources.

26
27 Ground disturbances resulting from
28 installation of utilities in a new underground
29 corridor have the potential to directly impact
30 buried but presently unknown cultural
31 resources. Demolishing the existing electrical
32 line, poles, and transformer could potentially
33 have a direct impact on cultural resources
34 if the line and associated features meet the
35 NPS 50-year age criteria and if determined
36 through consultation to be a historic property.
37 Restoration of cultural landscape features
38 and rehabilitation of the Dining Lodge (HS-
39 422) and cabins, in keeping with the historic
40 integrity of the structures, would have a
41 beneficial impact on cultural resources due
42 to the stabilization of the features themselves
43

1 and by maintaining and enhancing visitor
2 experience by restoring the historical fabric of
3 the structures. Naturalization of the landscape
4 via demolition of aboveground utilities would
5 result in beneficial visual impacts on the
6 cultural landscape. Restoration of the Big
7 Spring Pavilion (HS-425) and repair of the
8 railings at the Latrine (HS-423) would also
9 have direct beneficial impacts on contributing
10 features of the BSHD. Although the existing
11 Big Spring Branch Vehicular Bridge is not a
12 contributing feature of the BSHD, replacement
13 of the bridge would be compatible in design
14 and materials with the other contributing
15 features of the BSHD, resulting in a negligible
16 effect on the BSHD.

17

18 Cumulative Impacts.

19 When considered cumulatively, all of the
20 actions under the no action alternative
21 would have short-term adverse impacts
22 primarily from new ground disturbance
23 (i.e. replacing failing and extant overhead
24 utility lines in an underground corridor), and
25 long-term beneficial impacts by restoring
26 the cultural landscape (i.e. restoring and
27 rehabilitating cultural landscape features and
28 buildings). The no action alternative, when
29 combined with past, present, and reasonably
30 foreseeable future actions, such as the Road
31 and Trails Master Plan (currently underway),
32 would continue to have local long-term
33 beneficial cumulative and short-term minimal
34 adverse cumulative impacts on cultural
35 resources.

36

37 Section 106 Mitigations.

38 The no action alternative would result in
39 direct local adverse impacts on cultural
40 resources from ground-disturbing actions
41 unless measures are implemented to avoid
42 or minimize effects on historic properties.
43 To mitigate potential adverse impacts on
44 cultural resources, survey, evaluative testing,
45 geophysical work, or monitoring may be
46 required to identify and evaluate the potential

1 for unknown cultural resources in areas
2 of ground disturbing activity. This work
3 would require consultation under the NPS
4 Service-wide Programmatic Agreement. For
5 the purposes of satisfying the requirements
6 of Section 106 of the National Historic
7 Preservation Act (54 U.S.C. 306108) for the
8 Big Spring Historic District, Ozark National
9 Scenic Riverways CLR/EA, no determination
10 of effect is being made at this time. NPS
11 will utilize the Nationwide Programmatic
12 Agreement of 2008 (PA) between the NPS,
13 Advisory Council on Historic Preservation
14 (ACHP) and the National Conference of State
15 Historic Preservation Officers (NCSHPO)
16 which provides established protocols for the
17 individual consideration of an undertaking
18 following either a streamlined or standard
19 review pathway. Prior to implementation
20 of any undertaking or recommendation
21 that has an effect on historic properties
22 presented within the Big Spring District
23 CLR/EA, these undertakings will be added to
24 the NPS Planning, Environment and Public
25 Comment (PEPC) database and reviewed by
26 the Regional CRM team. A determination will
27 be made on the treatment of the undertakings
28 according to the protocols of the PA. For
29 the purposes of this CLR/EA, the Section
30 106 process as defined in 36 CFR 800 is
31 satisfied by this process. Overall, the no action
32 alternative would have long-term beneficial
33 impacts on cultural resources as long as
34 potential adverse impacts are mitigated.

35

36 **Action Alternative**

37

38 Direct and Indirect Impacts of the Alternative.

39 Under the action alternative, all
40 improvements proposed under the no action
41 alternative would be implemented, as well
42 as additional actions to fully rehabilitate
43 the historic setting of the park. Utilities
44 would be updated and placed underground
45 in a single corridor to minimize potential
46 impacts on cultural resources; however,

1 ground disturbances from burying utilities
 2 could potentially adversely impact buried
 3 but presently unknown cultural resources.
 4 In addition to rehabilitation of the interior
 5 and exterior of the Dining Lodge (HS-422)
 6 and cabins and restoration/stabilization
 7 of structures such as stone retaining walls,
 8 wooden staircases, and steps, preservation
 9 measures would occur at other contributing
 10 buildings and structures within the park.
 11 Improvements to the landscape surrounding
 12 these buildings or structures would also
 13 occur to conform to the historic character
 14 of the landscape and to meet contemporary
 15 needs. Improvements would consist of
 16 clearing overgrown vegetation and/or
 17 reconstructing historic features that were
 18 removed in the past, but would contribute to
 19 the historic setting of the park. Other actions
 20 that could impact cultural resources include
 21 adding pedestrian routes, rehabilitating
 22 some buildings and areas within the
 23 BSHD to accommodate new uses and/or
 24 universal accessibility, repairing existing trail
 25 alignments and creek crossings, rerouting and
 26 clearing trail alignments and creek crossings,
 27 removing noncontributing features, and
 28 constructing a new restroom.
 29
 30 Many of the activities proposed under the
 31 action alternative, including rehabilitation
 32 and preservation of contributing buildings,
 33 structures, and features; removal of
 34 aboveground utility lines, noncontributing
 35 features, and invasive plant species; and
 36 replacement of modern materials with
 37 those more compatible with the historic
 38 character, would improve the setting and
 39 feeling of the cultural landscape and result
 40 in long-term beneficial impacts on the
 41 cultural landscape. Removal of aboveground
 42 utilities and restoration of the historic
 43 landscape surrounding contributing
 44 buildings, structures, and features also
 45 would have beneficial visual impacts on the
 46 cultural landscape. Removal of vegetation

1 and shallow subsurface disturbance would
 2 occur during construction of missing or
 3 new features, which could adversely impact
 4 buried archeological sites. Rehabilitation
 5 of buildings, structures, new parking areas,
 6 and trails and features, if not conducted in a
 7 manner that preserves their historic integrity,
 8 could have a long-term direct adverse impact
 9 on cultural resources. Modifying structures
 10 and walkways to provide universal access
 11 would result in long-term direct adverse
 12 impacts from altering the historical feeling
 13 and design of the structures. Repairing and
 14 restoring contributing trail alignments, if not
 15 done in keeping with the historic integrity,
 16 could result in adverse impacts to the cultural
 17 landscape.

18 Cumulative Impacts.

19 The action alternative, when combined with
 20 past, present, and reasonably foreseeable
 21 future actions, such as the Road and Trails
 22 Master Plan (currently underway), would
 23 have the potential for both long-term
 24 beneficial and local short-term adverse
 25 cumulative effects on historic properties. The
 26 removal of noncontributing features, utility
 27 lines and poles, and nonnative vegetation
 28 would improve the setting and feeling of
 29 the cultural landscape. Rehabilitation of
 30 contributing buildings, structures, and
 31 features, if done in a way that preserves
 32 the historic integrity, would have long-
 33 term beneficial cumulative effects. Ground
 34 disturbances under the action alternative
 35 could adversely affect the integrity of
 36 unknown historic properties. Overall, when
 37 combined with past, present, and reasonably
 38 foreseeable future actions, the action
 39 alternative would have a long-term beneficial
 40 impact on cultural resources.

42 Section 106 Mitigations.

43 The action alternative would have local
 44 short-term and long-term adverse effects on
 45 cultural resources from changes to historic
 46

Vegetation

1 structures that are not in keeping with their
2 historic integrity. Alterations to historic
3 structures to provide universal accessibility
4 may constitute an adverse effect from changes
5 to the historical feeling and design of the
6 structures. Beneficial effects would occur
7 from removal of noncontributing features and
8 restoration of the setting and feeling of the
9 cultural landscape by removing vegetation.
10 Cumulative effects would be local, short-
11 term and long-term, and adverse; and long-
12 term and beneficial. Adverse effects from
13 modifications to contributing buildings not in
14 keeping with their historic character would
15 require Historic American Building Survey
16 (HABS) documentation. Methods should be
17 employed to evaluate for the potential of
18 unknown archeological resources prior to
19 ground disturbing activity from vegetation
20 removal or utility work.

1 Methodology

2
3 Potential impacts on vegetation were
4 evaluated based on the existing vegetation
5 and the natural or human-based processes
6 sustaining them within the park as described
7 in "Chapter 3: Existing Conditions and
8 Landscape Analysis." Predictions about
9 impacts were based on the expected
10 disturbance to vegetation communities,
11 professional judgment, and experience with
12 previous projects. Short-term impacts are
13 those in which the vegetation would recover
14 in less than 1 year and long-term impacts are
15 those that would take more than 1 year for
16 the vegetation to recover.

18 No Action Alternative

20 Direct and Indirect Impacts of the Alternative.

21 Under the no action alternative, the present
22 level of use, management, and maintenance
23 would continue, resulting in minimal impacts
24 on vegetation. Mowing operations would
25 continue, which would maintain the existing
26 lawns and prevent encroachment of the
27 native forest in these areas. Maintaining
28 existing mown areas would be a slight
29 adverse effect on vegetation by maintaining a
30 more open setting in mown areas compared
31 with the forested areas that would naturally
32 occur, but would affect only a relatively small
33 area within the park. Replacing failing utility
34 lines to the Dining Lodge (HS-422) and
35 cabins would result in short-term removal
36 of vegetation. Vegetation would be restored
37 with native species following construction.
38 An overhead electric line in a forested area
39 would be replaced with an underground
40 utility line. Removal of the overhead electric
41 line would allow vegetation communities
42 to increase after the electric line alignment
43 is revegetated, resulting in a benefit to
44 vegetation over the long term. Restoring

landscapes of the Big Spring Historic District would benefit vegetation by repairing eroded landscaping and removing invasive plant species. Purple loosestrife and other invasive plant species may continue to spread in the park, resulting in adverse impacts on native plant communities. Ongoing park management practices to remove and control invasive plant species would reduce the potential for invasive plant species to spread in the project area. Overall, the no action alternative would have a slight adverse effect on vegetation over the long term.

Cumulative Impacts.

When considered cumulatively, all of the actions under the no action alternative (i.e., replacing failing overhead utility lines in an underground corridor, demolishing extant aboveground utility lines and placing these lines underground, and restoring and rehabilitating cultural landscape features and buildings) have had, and would continue to have, minor adverse impacts on vegetation. As previously described, direct and indirect impacts of the no action alternative on vegetation also would occur from mowing and continued control of invasive species. When added to the existing cumulative effects, the impacts of the no action alternative would have a minor adverse contribution, but would not substantially change the overall cumulative effects already occurring. Thus, when the effects of the no action alternative are combined with the effects of other past, present, and reasonably foreseeable future impacts, the total cumulative impacts on vegetation would continue to be minor and adverse.

Action Alternative

Direct and Indirect Impacts of the Alternative.

Under the action alternative, all improvements proposed under the no action alternative would be implemented, as well as additional actions to fully rehabilitate the historic setting of the park. Under the action alternative, changes to vegetation management in the project area would include clearing or thinning vegetation in select areas to restore or maintain the open nature of the landscape. Vegetation would be thinned within a 92-acre area encompassing the Entrance Building (HS-432), maintenance area, cabins, and Dining Lodge (HS-422), and the area around Big Spring. Of this 92-acre area, only about 30 acres would be thinned, because much of the area includes roads, buildings, existing parking areas, and play fields, which are not vegetated, or where vegetation management would not change. Upland vegetation would be maintained with a more open appearance compared with current maintenance. The thinned area would continue to be forested, but some clearing would occur to thin the understory and remove downed limbs to improve views. Impacts on vegetation would result primarily from removal of understory species. Mature trees would be preserved. Additional impacts on vegetation would include removing overgrown vegetation adjacent to the Dining Lodge and Latrine (HS-423), removing invasive plant species, and restoring some historic plantings in select locations. Restoring historic plantings would include planting species similar to species in the native forest in a pattern and density for aesthetic appeal. No invasive species would be planted.

About 10 acres of upland vegetation would be removed to restore the open playfield north

1 of Big Spring to its full historic extent. Of the
2 vegetation removed from the playfield, about
3 0.5 acre would be an area dominated by trees
4 and shrubs, and 9.5 acres would be grasses
5 and forbs. Vegetation between the Big Spring
6 parking area and Big Spring branch would be
7 thinned as needed to maintain views to Big
8 Spring.
9
10 About 0.5 to 1 acre of vegetation would be
11 cleared at the CCC Camp Ruin to restore
12 historic conditions and views and improve
13 interpretation and educational opportunities
14 at the camp. The impacted area at the
15 camp is approximate because the extent of
16 vegetation removal would depend on future
17 archeological investigations to verify the
18 extent of the camp. Impacts on vegetation
19 would result from thinning the understory to
20 increase the visibility of building foundations
21 and walkways at the camp. Mature trees and
22 shrubs would be preserved.
23
24 Less than 0.10 acre of vegetation would be
25 impacted by clearing vegetation to construct
26 a trail from Road Z-206 to the CCC Rock
27 Quarry (HS-700) and maintaining the open
28 nature of the quarry. The trail would follow
29 an abandoned roadbed that has become
30 overgrown with vegetation. Constructing the
31 trail along the abandoned roadbed would
32 require removing vegetation along a section
33 of the road about 250 feet long and 10 feet
34 wide. Vegetation would be removed as
35 necessary to maintain the open nature of the
36 quarry or if the vegetation would threaten or
37 damage the cultural resource.
38
39 Vegetation would be cleared as necessary
40 along portions of existing trails throughout
41 the park to restore the trails to historic
42 conditions. Vegetation also would be cleared
43 for small parking and pull-off areas for trail
44 access, as well as at the Chilton Loop overlook

1 to provide enhanced views for visitors.
2 Overall, vegetation would change less than
3 2% of the 5,580 acre project area.
4
5 Overall, vegetation management would
6 change on about 41 acres, about 1% of
7 the 5,580 acre project area. This change in
8 management would alter the vegetation
9 communities in a portion of the project area.
10 Removal of invasive species would improve
11 vegetation communities. Clearing and
12 thinning would be confined to the smallest
13 area necessary to improve views and restore
14 the cultural landscape. Infestation and spread
15 of invasive exotic plants is possible as invasive
16 plant species frequently invade disturbed
17 ground where they are easily established and
18 outcompete native species if left unchecked.
19 Controlling invasive plant species would
20 minimize the potential for long-term impacts.
21 Overall, the action alternative would have a
22 beneficial effect on vegetation from removing
23 invasive species and thinning vegetation
24 in overgrown areas. This would be a slight
25 impact because the impacted vegetation types
26 are common in the project area and only 1%
27 of the project area would be affected.
28
29 Cumulative Impacts.
30 The impacts of past, present, and reasonably
31 foreseeable future actions on vegetation
32 would result from replacing failing utility
33 lines at the Dining Lodge (HS-422) and
34 cabins, restoring landscapes at the BSHD, and
35 controlling the spread of invasive nonnative
36 plants. As described above for the no action
37 alternative, these actions have had, and would
38 continue to have, minor adverse impacts
39 on vegetation. As previously described, the
40 action alternative would have beneficial
41 impacts on about 41 acres of vegetation
42 within the project area. Continuing control of
43 invasive plant species would also contribute a
44 beneficial effect. When added to the existing

Visitor Use and Experience

1 cumulative effects, the impacts of the action
 2 alternative would contribute to, but would not
 3 change, the overall cumulative effects already
 4 occurring. Thus, when the effects of the action
 5 alternative are combined with these other
 6 past, present, and reasonably foreseeable
 7 future impacts, the total cumulative impacts
 8 on vegetation would continue to be minor and
 9 adverse within the project area.

1 Methodology

2
 3 Potential impacts on visitor use and
 4 experience were assessed based on changes
 5 to the existing opportunities and quality for
 6 visitors to enjoy park resources, values, and
 7 amenities. For this analysis, visitor use and
 8 experience includes visitor understanding of
 9 the cultural landscape within the Big Spring
 10 Historic District, satisfaction, and safety, as
 11 well as availability of visitor options. Short-
 12 term impacts on visitor use and experience
 13 would last only during project construction
 14 activities, while long-term impacts would
 15 extend beyond construction activities.

17 No Action Alternative

19 Direct and Indirect Impacts of the Alternative.

20 Under the no action alternative, the present
 21 level of use, management, and maintenance
 22 would continue and would include actions
 23 identified in the GMP and actions already
 24 identified/in progress. Overall, effects on
 25 visitor use from the no action alternative
 26 would be minimal. However, several ongoing
 27 or planned projects would result in beneficial
 28 effects on visitor use and experience. Because
 29 the Dining Lodge (HS-422) and cabins have
 30 experienced numerous electrical outages
 31 and other system failures, replacing failing
 32 utility lines to these facilities would provide
 33 reliable service for visitors and staff,
 34 resulting in a better experience for visitors
 35 to the Dining Lodge and cabins. In addition,
 36 because the utility infrastructure of exposed
 37 piping and overhead lines would be buried
 38 underground, the result would be a more
 39 natural character and an improved visitor
 40 experience. Rehabilitation of the Dining
 41 Lodge and 15 cabins would provide much
 42 needed upgrades to meet current codes
 43 including universal access, provide fully
 44 functioning facilities for the concessioner,

1 and provide a better visitor experience.
2 Restoring the cultural landscapes within
3 the Big Spring Historic District would result
4 in improved visitor safety and experience
5 by addressing deteriorating walls, steps,
6 staircases, trails, and plantings. Improved
7 trail conditions and replacement of wayside
8 exhibits would result in enhancements to the
9 interpretive and educational experience for
10 visitors. Local short-term adverse effects may
11 occur on visitor use and experience during
12 construction and improvement activities.
13 Under the no action alternative, access to the
14 park units would remain the same, other than
15 the reopening of the Dining Lodge, with the
16 Museum (HS-420), Latrine (HS-423), and Fire
17 Tower / Lookout Tower (HS-1404) remaining
18 closed to the public.

19

20 Cumulative Impacts.

21 When considered cumulatively, all of the
22 actions under the no action alternative
23 (i.e., replacing failing overhead utility lines
24 in an underground corridor and restoring
25 and rehabilitating cultural landscape
26 features and buildings) would have a local
27 long-term beneficial impact on visitor use
28 and experience. Reasonably foreseeable
29 future actions, such as the Roads and Trails
30 Master Plan, and other park improvement
31 projects, such as restoration of the Big Spring
32 Pavilion (HS-425) and replacement of the
33 Big Spring Branch Vehicular Bridge, would
34 have beneficial effects on visitor use and
35 experience from improved infrastructure
36 throughout the Big Spring Historic District.
37 Those effects, combined with the long-term
38 beneficial effects of the no action alternative,
39 would result in beneficial cumulative effects.

40

41 **Action Alternative**

42

43 Direct and Indirect Impacts of the Alternative.

44 Under the action alternative, all
45 improvements proposed under the no action

1 alternative would be implemented as well
2 as additional actions to fully rehabilitate
3 the historic setting of the park. Visitor use
4 and experience would be enhanced from
5 the action alternative in numerous ways:
6 opening visitor access to the Museum (HS-
7 420), Fire Tower / Lookout Tower (HS-1404)
8 (guided access only), and Latrine (HS-423_
9 as a visitor contact area); preserving and
10 repairing the historic setting throughout
11 the core development area by rehabilitating
12 stone walls, trails/walkways, and historic
13 vegetation, and removing noncontributing
14 features; rehabilitating trails, providing
15 trailhead pull-outs and parking, and
16 enhancing views at the Chilton Loop overlook
17 within the historic district; improving the
18 interpretation of the Big Spring Historic
19 District and cultural landscape through
20 additional wayfinding and new or replaced
21 interpretive signs; and clearing vegetation
22 to allow for historic views to the river and
23 structures. Visitor use and experience may
24 be temporarily impacted by implementation
25 of these measures and temporary facility and
26 trail closures. The impacts on visitor use and
27 experience during rehabilitation work would
28 be local, short-term, and adverse. Overall, the
29 action alternative would result in parkwide
30 long-term beneficial effects on visitor use and
31 experience.

32

33 Cumulative Impacts.

34 The past, present, and reasonably foreseeable
35 future actions and their impacts would be the
36 same as those for the no action alternative.
37 Past, present, and reasonably foreseeable
38 future actions would have local long-term
39 beneficial effects and local short-term minor
40 adverse cumulative impacts on visitor use and
41 experience. Those impacts, combined with
42 the local long-term beneficial effects of the
43 action alternative, would result in parkwide
44 short-term minor adverse cumulative impacts
45 and long-term beneficial cumulative effects.

Visual Resources

Methodology

Potential impacts on visual resources were evaluated based on changes to the visual landscape from the visitor's perspective. Visual resources include the views from the Dining Lodge (HS-422), cabins, pavilions, playfields, trails, and other visitor contact areas or amenities; views of the Current River and Big Spring; and overall views of elements that contribute to the Big Spring Historic District. The geographic project area for evaluating impacts on visual resources includes the overall BSHD and cultural landscape within the core development area and Big Spring area. The cultural landscape within the park is discussed in more detail in the "Cultural Resources" section. Short-term impacts on visual resources would last less than three years, while long-term impacts would last more than three years.

No Action Alternative

Direct and Indirect Impacts of the Alternative.

Under the no action alternative, the present level of use, management, and maintenance would continue and would include actions identified in the GMP and actions already identified/in progress. Overall, effects on visual resources from the no action alternative would be minimal. However, several ongoing or planned projects would result in beneficial effects on the visual resources within the Big Spring Historic District. Because the utility infrastructure of exposed piping and overhead lines would be buried underground, the visual character would improve around the Dining Lodge (HS-422) and cabins. Rehabilitation of the Dining Lodge, cabins, and Big Spring Pavilion (HS-425) would improve the visual condition and character of the structures. Restoring the cultural landscapes within the

Big Spring Historic District would result in improvements to the visual character within the Big Spring Historic District by repairing deteriorating walls, steps, staircases, the Boat Dock, trails, and eroded plantings. Local short-term adverse effects on visual resources may result during construction and improvement activities and for a period following improvements as revegetation occurs.

Cumulative Impacts.

When considered cumulatively, all of the actions under the no action alternative (i.e., replacing failing overhead utility lines in an underground corridor and restoring and rehabilitating cultural landscape features and buildings) would have a local long-term beneficial impact on visual resources and a local short-term adverse impact on visual resources during and following construction.

Reasonably foreseeable future actions including park improvement projects, such as restoration of the Big Spring Pavilion (HS-425) and replacement of the Big Spring Branch Vehicular Bridge, would have beneficial effects on visual resources from improved infrastructure throughout the Big Spring Historic District. Those effects, combined with the long-term beneficial effects of the no action alternative, would result in beneficial cumulative effects on the visual character of the Big Spring Historic District.

Action Alternative

Direct and Indirect Impacts of the Alternative.

Under the action alternative, all improvements proposed under the no action alternative would be implemented as well as additional actions to fully rehabilitate the historic setting of the park. Visual resources

Wilderness

1 within the Big Spring Historic District would
2 be enhanced from the action alternative
3 by preserving and repairing the historic
4 setting throughout the core development
5 area by rehabilitating stone walls, trails/
6 walkways, and historic vegetation. The
7 removal of noncontributing features, such as
8 the pedestrian lights and interpretive panels
9 from the Dining Lodge (HS-422) as well as
10 redesigning other noncontributing features
11 to be compatible with the historic setting,
12 would result in improved visual resources
13 within the Big Spring Historic District.
14 Clearing vegetation to allow for historic views
15 to the river and structures would benefit
16 the visual character. In addition, clearing
17 vegetation on select trails within the historic
18 district as well as the Chilton Loop overlook
19 would provide enhanced views of historic
20 trails and features. Visual resources may be
21 temporarily impacted by implementation of
22 these measures from construction activities
23 and rehabilitation of vegetation. The impacts
24 on visual resources during rehabilitation
25 work would be local, short-term, and adverse.
26 Overall, the action alternative would result in
27 parkwide long-term beneficial effects on the
28 visual character within the Big Spring Historic
29 District.

30

31 Cumulative Impacts.

32 The past, present, and reasonably foreseeable
33 future actions and their impacts would be the
34 same as those for the no action alternative.
35 Past, present, and reasonably foreseeable
36 future actions would have local long-term
37 beneficial effects and local short-term minor
38 adverse cumulative impacts on the visual
39 character within the Big Spring Historic
40 District. Combined with the local long-term
41 beneficial effects of the action alternative,
42 cumulative effects would be parkwide, short-
43 term, minor, and adverse and long-term and
44 beneficial.

1 **Methodology**

2

3 Analysis of impacts on wilderness areas
4 requires a determination of what qualities
5 of wilderness character, if any, would be
6 affected by the proposed project. As described
7 in the *Wilderness Affected Environment*
8 section, these qualities are (1) untrammelled,
9 (2) undeveloped, (3) natural, (4) offers
10 outstanding opportunities for solitude or
11 primitive and unconfined recreation, and
12 (5) other features of scientific, educational,
13 scenic, or historical value. Although the
14 wilderness areas have not been officially
15 designated as wilderness by Congress, the
16 recommendation of these areas as wilderness
17 by the NPS warrants impacts analysis. A
18 discussion of impacts on these qualities from
19 the alternative actions follows.

20

21 **No Action Alternative**

22

23 Direct and Indirect Impacts of the Alternative.

24 Under the no action alternative, the present
25 level of use, management, and maintenance
26 would continue and would include
27 actions identified in the GMP and actions
28 already identified/in progress. Ongoing or
29 planned projects include burying utilities,
30 rehabilitating the Dining Lodge and cabins,
31 and restoring the cultural landscape of the
32 Big Spring Historic District. These actions
33 would not take place within, but are located
34 next to, proposed wilderness areas. These
35 actions have the potential to affect proposed
36 wilderness areas—specifically the historical
37 value of these areas—within the Big Spring
38 Historic District.

39

40 Cumulative Impacts.

41 When considered cumulatively, all of the
42 actions under the no action alternative (i.e.,
43 replacing failing overhead utility lines in an
44 underground corridor and restoring and

1 rehabilitating cultural landscape features
2 and buildings) would have a local long-term
3 beneficial impact on wilderness resources
4 and a local short-term adverse impact on
5 wilderness resources during and following
6 construction.

8 **Action Alternative**

10 As part of the wilderness study, which
11 includes the Big Spring Historic District, the
12 GMP states,

14 • Wilderness designation today would
15 represent a continuum connecting
16 federal policies of the past with a modern
17 interpretation of wilderness in the
18 present concerning recreation in the
19 environment, environmental protection,
20 and the experience of wilderness
21 character. The Big Spring Historic District
22 and CCC-era camp are enhancing qualities
23 in the Big Spring project area, affording
24 the opportunity to embrace the historic
25 values of the project area rather than
26 simply tolerate them. The Wilderness
27 Act, when describing a wilderness area,
28 includes the passage: *may also contain*
29 *ecological, geological, or other features of*
30 *scientific, educational, scenic, or historical*
31 *value*. In the case of the Big Spring
32 project area, these historic features are
33 recognized as part of the wilderness
34 character to be managed and preserved.

36 Under the action alternative, rehabilitation of
37 historic structures and the cultural landscape
38 would be consistent with recommendations
39 outlined in the GMP, as follows:

41 • The Fire Tower / Lookout Tower (HS-
42 1404), incinerator, barn, and CCC-era
43 camp would be retained.

1 • Motorized vehicle use of the access roads
2 to the Fire Tower / Lookout Tower (HS-
3 1404), storage area, and Chilton Creek
4 Barn would be prohibited. The roads
5 would be evaluated to determine the
6 feasibility of restoring them to a CCC-
7 era condition, allowing them to return
8 to a natural state, or eliminating them
9 altogether.

11 **Minimum Requirement/Minimum Tool** 12 **Analysis**

14 Section 4(c) of the *Wilderness Act* prohibits
15 certain activities, including commercial
16 enterprises and permanent roads, in any
17 designated wilderness area, except as
18 necessary to meet minimum requirements
19 for the administration of the area. NPS policy
20 dictates that all management decisions
21 affecting wilderness must be consistent with
22 the “minimum requirement” concept by
23 completing a minimum requirement analysis
24 (MRA) on potential actions in wilderness.
25 The MRA enables managers to examine and
26 document whether a proposed management
27 action is appropriate in wilderness and, if
28 it is, what is the least intrusive equipment,
29 regulation, or practice (minimum tool)
30 that will achieve wilderness management
31 objectives. The completion of this process
32 assists managers in making informed and
33 appropriate decisions concerning actions
34 conducted in wilderness.^{4.1}

36 Direct and Indirect Impacts of the Alternative.

37 Under the action alternative, implementation
38 actions occurring in wilderness would
39 require a MRA. Such actions include the
40 rehabilitation of structures and features such
41 as the Fire Tower / Lookout Tower (HS-
42 1404), stone walls, and other construction-

44 4.1 NPS Wilderness Management Policy, 2006.

1 related activities; rehabilitation of trails and
2 stream crossings and addition of pull-outs
3 and parking areas near trailheads; and the
4 rehabilitation and maintenance of the cultural
5 landscape. Because the methods used to
6 implement treatments under the action
7 alternative are not specified at this time (i.e.,
8 heavy equipment or hand tools), completion
9 of a MRA would ensure that these activities
10 occurring within or near proposed wilderness
11 would have the least amount of impact
12 necessary to achieve rehabilitation of the
13 resource. It is anticipated that adverse effects
14 on wilderness character would be local and
15 minimal in the short term and long term and
16 beneficial.

17

18 Cumulative Impacts.

19 The past, present, and reasonably foreseeable
20 future actions and their impacts would be the
21 same as those for the no action alternative.
22 Past, present, and reasonably foreseeable
23 future actions would have local long-term
24 beneficial effects and local short-term
25 minor adverse cumulative impacts on the
26 wilderness character within the Big Spring
27 Historic District. Following completion of a
28 MRA, it is anticipated that effects of the action
29 alternative on wilderness resources combined
30 with the long-term beneficial effects of the
31 action alternative, would be local, short-term,
32 and adverse and long-term and beneficial.

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