



Pullman Avenue Trail Connection

Environmental Assessment
Hot Springs National Park
Hot Springs, Arkansas



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Pullman Avenue Trail Connection Environmental Assessment Hot Springs National Park Hot Springs, Arkansas

PROJECT SUMMARY

The National Park Service (NPS) proposes to implement a trail connection between Hot Springs National Park (henceforth “the park”) and City of Hot Springs (henceforth “the City”) property in Hot Springs, Arkansas. The purpose of the proposed action is to construct a multi-use trail through the park that would connect central and northwestern neighborhoods in the City to an extensive network of recreational trails throughout the City’s Northwoods property. Throughout this document, a “multi-use trail” is defined as a trail open to both pedestrian and bicycle use. The project responds to a specific opportunity and need identified by park and City leadership: to provide visitors to the national park and residents of the City with a multi-use trail connection that both increases access to recreational opportunities and alleviates the safety concerns of existing access roads by necessitating fewer miles on paved streets and roads lacking bicycle lanes.

This environmental assessment (EA) describes one action alternative and the no-action alternative; it also analyzes the environmental consequences of implementing each alternative. Under the no-action alternative, the NPS would maintain the current conditions at the park. Under alternative 2, a 0.65-mile natural surface, multi-use trail connection would be built from Pullman Avenue to the City’s Northwoods Urban Forest Park. The City is currently constructing multi-use trails on that property that will be open to bicycle use. Alternative 2 would include the option for bicycle access to allow local residents and visitors legal access in and across the park to the new recreational trails on the City property. The project objectives are to: (1) develop a multi-use trail solution that enhances visitor experience and safety while protecting natural and cultural resources; (2) accommodate different trail users and reduce maintenance by using sustainable trail construction techniques and minimizing park infrastructure; and (3) determine feasible options for connecting the park with the ongoing development of regional multi-use trail networks.

This environmental assessment (EA) will describe the alternatives for the proposed multi-use trail connection, including one action alternative and the no-action alternative, and it analyzes the environmental consequences of implementing the alternatives. The EA will be prepared in accordance with the National Environmental Policy Act of 1969 (NEPA); regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] Parts 1500–1508); NPS Director’s Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-Making (NPS 2011); and the NPS NEPA Handbook (NPS 2015). The NPS will also separately and concurrently prepare an assessment of effect to comply with the requirements of Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (54 United States Code [U.S.C.] § 306108), and its implementing regulations (36 CFR Part 800). In accordance with 36 CFR § 4.30 (NPS Bicycle Rule), the NPS will promulgate a bicycle rule to implement this project for the proposed multi-use trail.

This plan fulfills a park planning priority for facility asset management and visitor use management at Hot Springs National Park and serves as a component of the park's planning portfolio. The park's planning portfolio consists of the individual plans, studies, and inventories, which together guide park decision making. The planning portfolio enables the use of targeted planning documents (such as this one) to meet a broad range of park planning needs and fulfill legal and policy requirements. The General Management Plan remains a critical piece of the park's planning portfolio and will continue to be updated and/or supplemented in a timely manner through the development of additional park planning documents.

Note to Reviewers and Respondents

Comments on this EA may be submitted electronically at the NPS Planning, Environment and Public Comment (PEPC) website (<http://parkplanning.nps.gov/hosp>) or you may mail written comments by 1/18/2019 to the address listed below. Before including personal identifying information in your comment, you should be aware that your entire comment (including your personal identifying information) may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Attn: Superintendent
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ACRONYMS AND ABBREVIATIONS

AADT	Average Annual Daily Traffic
ABA	Architectural Barriers Act
ADA	Americans with Disabilities Act
ADPT	Arkansas Department of Parks and Tourism
ArDOT	Arkansas Department of Transportation
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulation
EA	Environmental Assessment
FWS	U.S. Fish and Wildlife Service
HOSP	Hot Springs National Park
IMBA	International Mountain Bicycling Association
Ipac	Information for Planning and Consultation
LOS	Level of Service
MA	May Affect
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NLAA	Not Likely to Adversely Affect
NPS	National Park Service
NRCS	Natural Resources Conservation Service
OIA	Outdoor Industry Association
PDC	Project Design Criteria
PEPC	Planning, Environment and Public Comment
RV	Recreational Vehicles
U.S.	United States
U.S.C.	United States Code
US	United States
USDA	United States Department of Agriculture

CHAPTER 1: PURPOSE AND NEED

1.1 INTRODUCTION

Hot Springs National Park (henceforth “the park”) is a 5,500-acre park in Hot Springs, Arkansas, that preserves geothermal spring water and resources related to therapeutic bathing. The park's vegetation, thermal waters, cold-water springs, bathhouses and associated cultural features, nearly 26 miles of hiking and equestrian trails, prehistoric and historic novaculite quarries, and general physical geography combine to form a 4,877-acre area of resource preservation and interpretation that is under the exclusive legislative jurisdiction of the federal government. Another approximately 670 acres are within the park boundary but are not federally owned. Congress created the park in 1832 when it designated the land as Hot Springs Reservation, making it the oldest existing unit in the National Park System. In 1921, the reservation's name changed to Hot Springs National Park (HOSP). Today, the park preserves and manages its natural and cultural resources for over 1.5 million annual visitors. The City, with an approximate population of 37,000, lies immediately adjacent to the park.

HOSP is the only national park in the United States established to promote a holistic approach to health by ensuring public access to geothermal water, the surrounding natural environment, and other public recreational landscapes. Accordingly, the NPS seeks to improve multi-use trail connections within the park by linking to regional trail networks outside of the park, while also promoting the fundamental resources and values of the park. The NPS is proposing to extend an existing road north of Pullman Avenue to connect the Park Avenue neighborhood of the City to its Northwoods Urban Forest Park (Northwoods). The City is currently constructing multi-use trails on that property that will be open to hiking and bicycle use. No City trails are planned for equestrian use.

1.2 PURPOSE AND NEED FOR ACTION

Local and regional growth, including the development of new recreational opportunities (e.g., bicycle and pedestrian trail networks) in and surrounding the City, have created opportunities for increased visitation and changed access to the park. Cedar Glades Road provides a paved road connection between downtown Hot Springs and the Northwoods area. However, there is not an existing trail connection between downtown and the Northwoods area.

The purpose of the proposed action is to construct a multi-use trail through the park that would connect central and northwestern neighborhoods in the City to an extensive network of recreational trails throughout the Northwoods property. The project responds to a specific opportunity and needs identified by park and City leadership: *to provide visitors to the national park and residents of the City with a multi-use trail connection that both increases access to recreational opportunities and alleviates safety concerns from hikers and bikers accessing the North Woods area via Cedar Glades Road.*

1.3 PROJECT OBJECTIVES

Objectives are more specific statements of purpose that provide additional basis for comparing the effectiveness of alternatives in achieving the desired outcomes of the action (NPS 2015). All alternatives carried forward for detailed analysis must meet all objectives and must resolve the purpose of and need for action. The following objectives were identified by the planning team for this project:

- Develop a multi-use trail solution that enhances visitor experience and safety while protecting natural and cultural resources.
- Accommodate different types of trail use, including hiking and mountain biking, and reduce maintenance by using sustainable trail construction techniques and minimizing park infrastructure.
- Connect the park with adjacent City and county trail networks.

1.4 PLANNING ISSUES AND CONCERNS IDENTIFIED DURING SCOPING

The NPS, stakeholders, and members of the public identified specific issues and concerns during scoping. Some of these issues and concerns were considered by the NPS but were ultimately dismissed from further analysis because they were determined not central to the proposal or of critical importance. Other issues and concerns were retained for detailed analysis and are included in the impact topics that are discussed in Chapter 3: Affected Environment and Environmental Consequences of this EA. Five impact topics dealing with these issues were retained for detailed analysis: Geologic Resources and Soils; Species of Concern; Access, Traffic, and Parking; Visitor Use and Experience; and Socioeconomic Impacts.

TABLE 1-1: PLANNING ISSUES RETAINED OR CONSIDERED BUT NOT RETAINED FOR FULL ANALYSIS

Level of Analysis	Planning Issues and Concerns
Retained for Detailed Analysis	<ul style="list-style-type: none"> • Geologic Resources and Soils • Species of Concern • Access, Traffic, and Parking • Visitor Use and Experience • Socioeconomic Impacts
Dismissed from Further Analysis	<ul style="list-style-type: none"> • Cultural Resources • Water Resources • Air Quality • Vegetation • Wildlife • American Indian Trust Resources • Environmental Justice

1.4.1 PLANNING ISSUES AND CONCERNS RETAINED FOR DETAILED ANALYSIS

Geologic Resources and Soils. The proposed action may result in impacts to geologic features and soil processes such as erosion. These impacts may occur during the trail construction period as well as during long-term use. This issue is evaluated in Section 3.2 – Geologic Resources and Soils.

Species of Concern. One federally listed mammal is confirmed present in the park: northern long-eared bat (*Myotis septentrionalis*, threatened), one federally listed plant is probably present in the park:

harperella (*Ptilimnium nodosum*, endangered), and one candidate species is present: tricolored bat (*Perimyotis subflavus*). No critical habitat for federally listed species is present.

Though the park does not contain any area designated as critical habitat for any species of concern, construction and maintenance of the proposed action, specifically removal of trees that pose a safety hazard to trail users (“hazard trees”), may impact habitat for the northern long-eared bat and tricolored bat. Habitat disturbance may also impact harperella distribution. Therefore, the impact on federally listed species or their habitat has been carried forward for further analysis in the Species of Concern section.

Access, Traffic, and Parking. The proposed action would have impacts to park access, traffic, and parking. This issue is evaluated in Section 3.4 – Access, Traffic, and Parking.

Visitor Use and Experience. The proposed action would add new trail uses and amenities and alter existing recreation opportunities. The new multi-use trail would also connect pedestrian and bicycle users to the City’s trail networks at Northwoods. This issue is evaluated in Section 3.5 – Visitor Use and Experience.

In particular, the introduction and management of bicycle use within the park on the proposed trail connection has the potential to impact park resources. Bicycle use is currently unauthorized on existing park trails. The proposed action should be consistent with the NPS Bicycle Rule found in 36 CFR § 4.30. Therefore, this issue has been carried forward for detailed analysis and evaluated in Section 3.5 – Visitor Use and Experience.

Socioeconomic Impacts. The proposed action has the potential to have socioeconomic impacts on the national park unit and the City because it may change visitation and use patterns by local residents and visitors. Therefore, this issue is evaluated in Section 3.6 – Socioeconomic Impacts.

1.4.2 PLANNING ISSUES AND CONCERNS DISMISSED FROM FURTHER ANALYSIS

Some resource impact topics that are commonly considered during the planning process were dismissed from detailed analysis either because the proposed action alternative would have no effect or minimal effects on the resource, or because the resource is not present in the action areas. The rationale for not retaining these specific topics is stated for each topic.

Impacts on cultural resources. The park is located in a region of Arkansas that is rich in archeological and historic resources. Previous research indicates nearby archeological sites. Therefore, a survey of the proposed multi-use trail alignment was undertaken in spring 2018 by Flat Earth Archeology, LLC of Cabot, Arkansas. The survey was conducted to determine whether the sites extended into the proposed multi-use trail area.

The cultural periods represented in this region are generally the same as those in the Southeastern United States (i.e., Paleo-Indian, Dalton, Archaic, Woodland, and Mississippian). In this region, particularly along waterways, aboriginal occupation dates from at least 12,000 B.C. to the contact period. Later occupants in the project area were probably members of the Quapaw, Caddo, and Osage peoples who lived in southern Arkansas at the time early European explorers journeyed west of the Mississippi River (Flat Earth Archeology 2018).

Rationale for dismissal: As a result of their inventory, Flat Earth Archeology identified no new sites, including archeological materials, cultural landscapes, or ethnographic resources, in or near the proposed

multi-use trail alignment. No additional inventory work was recommended (Flat Earth Archeology 2018). Flat Earth Archeology conducted the investigation according to the standards prescribed in A State Plan for the Conservation of Archeological Resources in Arkansas (Davis 1994; 2010) and Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines (NPS 2017). Based on the results of the survey, Flat Earth Archeology recommended that the proposed undertaking meets the criteria for a finding of No Historic Properties Affected as per 36 CFR § 800.4 (d)(1). Therefore, cultural resources was dismissed as an impact topic for further analysis in this environmental assessment. However, project design criteria (PDC) for cultural resources have been included in Table 2-2 in the event that historic or archeologic resources are discovered during construction of the multi-use trail.

Impacts on water resources including hot springs, floodplains, and wetlands. As a park whose purpose is “to protect its unique geothermal spring water and associated lands for public health, wellness, and enjoyment,” along with fundamental resources including thermal water, water collection and distribution and public interaction with the geothermal environment, water resources are of utmost importance for protection (NPS 2012). In the early phases of the project, internal scoping comments suggested that impacts on water resources should be investigated due to trail construction, erosion, and future trail use.

Rationale for dismissal: No floodplains or wetlands are located in the project area. Neither water quality nor water quantity would be affected by the proposed action. The nearest hot springs and geothermal features are more than 1.0 mile from the proposed action, and no impacts are anticipated. While the project does lie within the hot springs' recharge zone, it does not occur within the primary area of recharge. Because the project has a total footprint of less than 1 acre, and because it would not add impervious surfaces or significantly alter the forest structure, infiltration rates would decline only a negligible amount, if at all. Dillon Lake on City property is approximately 0.50 mile from the proposed multi-use trail alignment and no impacts on water resources at or near the reservoir are anticipated from the proposed action. Construction and use of the proposed multi-use trail would therefore have no impacts on water resources, wetlands, or floodplains. Therefore, water resources were dismissed as an impact topic for further analysis in this environmental assessment.

Native and Nonnative or Exotic Vegetation. The proposed action has the potential to disturb or remove native vegetation. The proposed action also has the potential to introduce or exacerbate nonnative and/or exotic vegetation species, especially during trail construction.

The most common topographic features of the park are the rocky mountain slopes with their novaculite outcrops. These areas support mixed stands of oak and hickory interspersed with shortleaf pine on the more exposed slopes and ridgetops. Shortleaf pine grows in a distinctive mix of thermic Ultisols and Inceptisols (Woods et al. 2004). The forest understory has potential to contain flowering shrubs, a wide variety of wildflowers, a rare local chinquapin species (*Castanea ozarkensis*), and occasionally the rare Graves spleenwort (*Asplenium gravesei*).

Rationale for dismissal: There is very little vegetation and herbaceous understory in the project area and the specific location for the multi-use trail alignment. Dead and downed woody debris and leaf litter cover much of the understory. Habitat fragmentation and edge effects are thus unlikely and impacts to native vegetation are anticipated to be negligible to minor. Nonnative and invasive species introduction during trail construction may occur but can be mitigated and monitored using PDC. Therefore, this topic has

been dismissed from detailed analysis; however, PDC for mitigation of impacts on native vegetation and prevention of nonnative and/or exotic species introduction have been included in Table 2-2.

Wildlife and Wildlife Habitat. The proposed action may contribute to disturbance of wildlife activities, movement patterns, and habitat on and near the new multi-use trail connection corridor.

Wildlife within the park is typical of the region, consisting mostly of rodents, bats, and other small mammals. Because of the region's mild climate, bird species are varied and plentiful. Aquatic resources are limited to portions of several small creeks and are void of significant game fish. The northern long-eared bat, a federally listed threatened species, is present in the park. The tricolored bat, a candidate species for federal listing, is also present in the park.

Rationale for dismissal: The project area already receives regular human activity, as hikers and equestrians use existing two-track trails and the Sunset Trail in the same general location. Additional human use is not expected to have more than minor impacts on wildlife, though a new type of recreation would be introduced with bicycle travel on the proposed multi-use connector trail. During trail construction, additional care would be taken to mitigate impacts on wildlife such as disturbance of the natural soundscape. Therefore, wildlife and wildlife habitat have been dismissed from detailed analysis, but construction-specific PDC have been included in Table 2-2 to minimize impacts to wildlife and wildlife habitat. As stated previously, federal species of concern have been carried forward for additional analysis of impacts on northern long-eared bat, tricolored bat, and harperella.

Air Quality. The construction of the proposed multi-use trail connection could result in emissions or other impacts on air quality in the short term, such as dust generation.

Rationale for dismissal: Air quality impacts are expected to be negligible during the construction phase. Dust and airborne soil may affect localized air quality during the construction period, limited to less than 100 feet around construction zones. Small equipment machinery such as mini excavators and mini bulldozers may be used during construction, which would generate a negligible amount of greenhouse gas emissions for a short duration. In the long-term, air quality impacts are expected to be negligible, as the use on the trail would be human-powered bicycle and pedestrian use. Therefore, air quality has been dismissed from detailed analysis in this environmental assessment.

American Indian Trust Resources. The NPS must evaluate if the proposed action could impact lands held in trust by the Secretary of the Interior for the benefit of Indians.

Rationale for dismissal: No lands held in trust for the benefit of Indians are located in the vicinity of the park. Similarly, the lands comprising the park are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, trust lands were dismissed as an impact topic for further analysis in this environmental assessment.

Environmental Justice Considerations. The proposed action could disproportionately impact minority or low-income populations.

Rationale for dismissal: Equal consideration was given to all public input from persons regardless of age, race, income status, or other socioeconomic or demographic factors; the proposed action would not result in any identifiable adverse human health effects; the proposed action would not disproportionately affect any minority or low-income population or community; and the proposed action would not result in

any identified effects that would be specific to any minority or low-income community. Therefore, environmental justice was dismissed as an impact topic for further analysis in this environmental assessment.

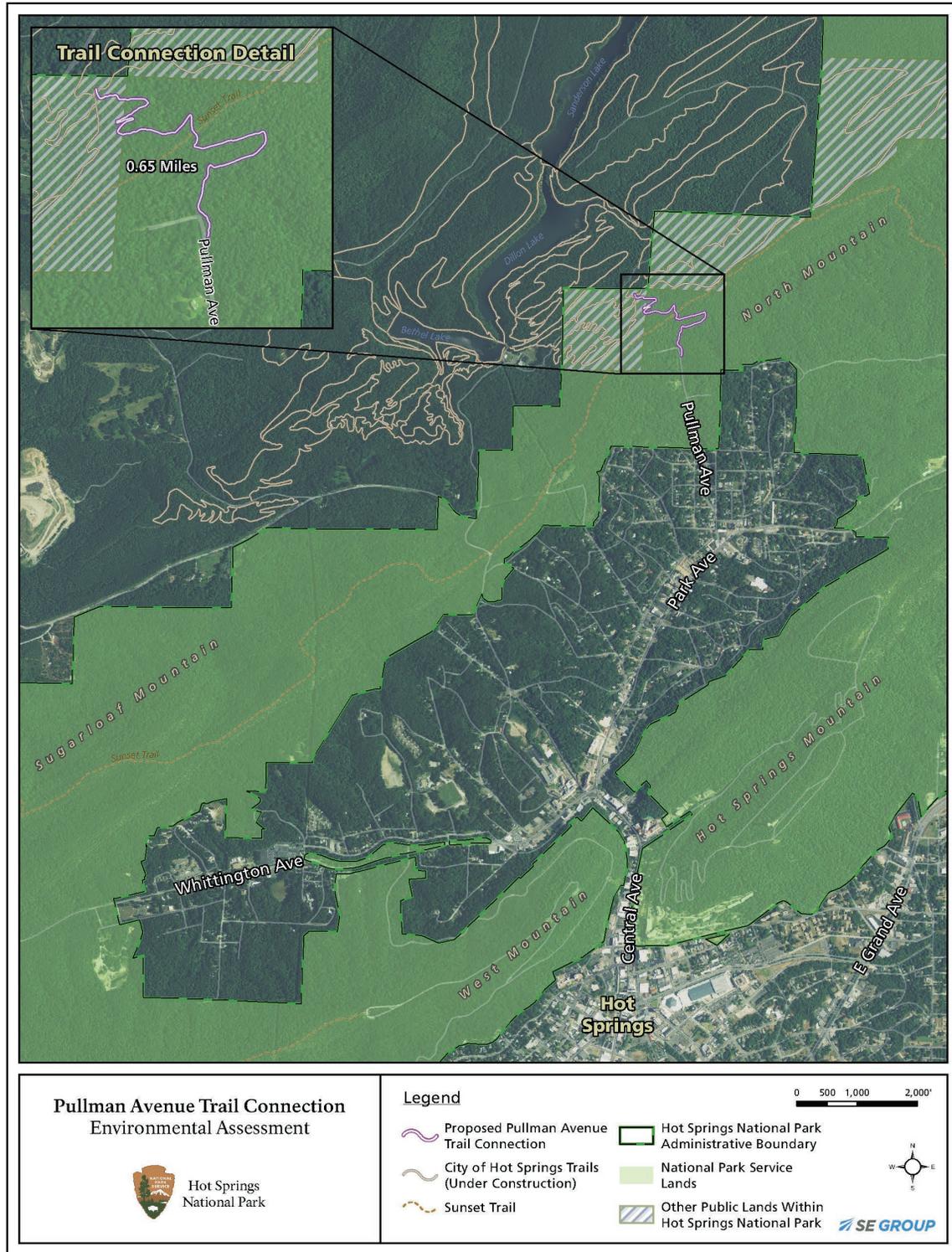


FIGURE 1: EXISTING CONDITIONS AND PROPOSED ACTION

CHAPTER 2: ALTERNATIVES

2.1 INTRODUCTION

2.1.1 OVERVIEW

This Pullman Avenue Trail Connection environmental assessment presents two alternatives for future trail opportunities at the park. The two alternatives are alternative 1, to continue current management (the no-action alternative), and alternative 2, the proposed action (NPS-preferred alternative). The process for alternative development and the elements of these alternatives are described in detail in this section. Impacts associated with the actions proposed under each alternative are outlined in Chapter 3: Affected Environment and Environmental Consequences of this EA.

2.1.2 DEVELOPMENT OF THE ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE

The planning team relied on the park's previous planning documents for guidance in developing the alternatives. These include the Hot Springs National Park Foundation Document Overview (NPS 2012) and the Hot Springs National Park Resources Management Plan (NPS 1997). Combined, these documents provide clear direction on park management objectives. In all alternatives, the NPS would continue to follow existing agreements and service-wide mandates, laws, and policies. Those mandates and policies are not repeated in this chapter.

Public input received during scoping was important in the development of the alternatives. The public scoping process helped the planning team understand the public's values, preferences, concerns, issues, and suggestions regarding visitor experiences and recreation opportunities within the park.

The purpose and need were developed through careful analysis of conversations from public scoping, review of the park's previous planning documents, and input from a wide variety of NPS staff. Any action alternative must address the purpose and need for the plan as described in Chapter 1: Purpose and Need.

The NPS is considering one action alternative. During alternative development, it was determined that the purpose and need for the plan could be met with a single action alternative (alternative 2) and that other alternatives were neither feasible nor necessary.

Once the action alternative (alternative 2) was developed, it was compared to the no-action alternative (alternative 1), which is the continuation of the park's current management actions and direction into the future; that is, continuing with the present course of action until that action is changed. The no-action alternative is included as a baseline against which to compare the effects of the action alternative. The no-action and one action alternatives are described in detail in this chapter.

The alternatives were shared with the public in the winter of 2018. Feedback was analyzed and considered as the planning team refined the alternatives. All public comments expressed support for the projects included in the action alternative. The main ideas reflected in the comments were related to improving quality of life for City residents and visitors through recreation opportunities, encouraging economic development in the area, protecting resources, and identifying appropriate visitor experiences and visitor safety needs related to access, parking, and public safety (see Chapter 4: Consultation and Coordination).

2.1.3 PROPOSED ACTION

“A proposed action is one option (alternative) for addressing purpose and need” (NPS 2015). The proposed action is to create a new trail and open it for multiple uses, including hiking and biking, in order to enhance connectivity within and beyond the park for the benefit of visitors and residents of the City and to expand recreational trail use opportunities.

2.1.4 CONNECTED ACTION

Potential development on City property would include a parking lot and related trailhead amenities to support trail use by visitors. Preliminary designs do not include any utilities or ground disturbance on park property. A new entry feature and bicycle access is proposed for the park/city boundary, and the remainder of the parking lot infrastructure would occur on City lands.

Parking lot development on the city’s property would not proceed unless the NPS authorizes the multi-use trail connection. Therefore, parking lot development would be a connected action per the NPS NEPA Handbook (NPS 2015). Although the NPS decision does not extend to the parking lot development on city property, the decision maker (the NPS superintendent) should understand the full extent of the environmental consequences of the action. The impacts of the proposed action and the connected action are considered together, in order to understand the entirety of effects to a given resource.

2.2 ALTERNATIVE 1 (NO-ACTION)

The no-action alternative is the continuation of current management actions and direction into the future; that is, continuing with the present course of action until that action is changed. The no-action alternative, as required by NEPA, also serves as a baseline with which to compare the effects of action alternatives with those of the status quo.

No new trails or facilities would be developed on federal lands in the project area under the no-action alternative. Visitors would continue to access the area via the Sunset Trail for activities such as hiking, horseback riding, and nature observation. Bicycle use would remain prohibited on all park trails under the no-action alternative.

Existing social trails (non-authorized, user-created trails that are not maintained by the park) may be used and additional social trails may be created to access multi-use trail opportunities on City lands adjacent to the project area. Visitors may continue to park at the end of Pullman Avenue or along other residential streets in the Park Avenue neighborhood, but the connected action would not be implemented, and no trailhead facilities would be constructed or installed.

2.3 ALTERNATIVE 2

Alternative 2 (proposed action) provides for multi-use trail connectivity through the park between a proposed trailhead at Pullman Avenue and ongoing trail development on City property at the park’s northern boundary (“the Pullman Avenue Trail Connection,” refer to Figure 1). A multi-use, natural surface trail (bare soil or rock) of a gentle grade (3–5%) is proposed for recreational uses, including hiking and mountain biking. No equestrian use or motorized uses would be permitted, and the trail would not be Americans with Disabilities Act/Architectural Barriers Act (ADA/ABA) accessible. It would be approximately 0.65 mile in length and would not include the placement of gravel or boardwalks. The

multi-use trail would be designed as a safe, sustainable route that would be maintained by the NPS and community partnerships for the recreational and health benefit of local residents and visitors. The multi-use trail would utilize landforms and natural features that exhibit the natural beauty of the area.

The multi-use trail would be built using sustainable trail construction techniques (refer to Appendix A: Trail Development Field Guide) by hand, using small machinery when necessary. It would be constructed and maintained using methods that minimize user conflict and maximize a natural surface texture, including bare soil and bedrock. The trail tread width would be 42 to 48 inches with a 4-foot clearance corridor on either side, required for construction and safety. The trail would follow the natural contours of the site, winding around obstacles such as trees, large rocks, and bushes. Obstacles that could deter certain users such as jumps, rollers, or water-bars would not be present. Turns would be constructed sustainably but would not be cambered to optimize cornering traction for bicycles. The trail itself would cover 0.31 acre of park land, with up to an additional 0.62 acre of clearing along the sides of the trail (e.g., the safety clearance corridor). The total acreage of the trail would be 0.93 acre or less.

The multi-use trail construction would be undertaken by International Mountain Biking Association (IMBA) Trail Solutions staff with oversight by NPS personnel as needed. The cost of this 0.65-mile segment would range from approximately \$20,000 to \$30,000 and its construction would be funded by the City.

Pullman Avenue is currently gated near the park boundary and is frequently used for unauthorized access to the park via social trails. Pullman Avenue was previously a residential street with homes on either side. As these homes have been vacated, the lots have been added to the park and the structures have been removed. A paved road surface remains intact, and the portion beyond the existing gate is closed to vehicular traffic. It is frequently used to access social trails in the park, however. Alternative 2 includes construction of trailhead infrastructure on Pullman Avenue (refer to Section 2.1.4 – Connected Action) and would allow bicycle use on the portion of the road closed to vehicular use. The existing gate would be removed and replaced by a new administrative gate on NPS lands, a gravel vehicle turnaround feature, and bollards or similar to prevent public vehicle access but allow safe access for pedestrians and bicyclists.

For hikers and bicyclists, the proposed trailhead would serve as a formalized entry point to the park where currently there is none. The trailhead is planned on City lands to include parking (approximately 18 spaces, including two accessible spaces, with additional parallel parking for approximately 40 cars along Pullman Avenue to Congress Street), accessible restrooms with flush toilets, a bench, bike rack, trash receptacle, two bike work stations, drinking fountain, and an information kiosk to educate visitors and convey trail user and location information. The road would be widened to 24 feet to accommodate the parking spaces. No designated horse trailer parking is planned at the proposed trailhead.

2.4 NPS BICYCLE RULE CONSIDERATIONS

2.4.1 BICYCLE RULE REQUIREMENTS

The action alternative must comply with 36 CFR § 4.30 (the Bicycle Rule), which contains regulations that manage bicycle use within national park system units.

The Bicycle Rule requires a special regulation to authorize bicycle use on new trails outside of developed areas. Prior to doing so, a planning document must evaluate the suitability of existing trail surfaces and

soil conditions for accommodating bicycle use, including any maintenance, minor rehabilitation, or armoring that would be necessary to upgrade the trail to sustainable condition.

Lifecycle maintenance costs, safety considerations, strategies to prevent or minimize user conflict, and methods to protect natural and cultural resources and mitigate impacts also must be analyzed. An EA or environmental impact statement must be completed that evaluates the effects of bicycle use in the park and on the specific trail. An EA must provide for a 30-day comment period. If there is a finding of no significant impact, the superintendent must then provide a written determination that the addition of bicycle use on the existing trail would be consistent with the protection of the park area's natural, scenic and aesthetic values, safety considerations, and management objectives and would not disturb wildlife or park resources, as well as obtain written approval from the regional director.

New trails requiring construction activities would be developed and constructed in accordance with sustainable trail design principles and guidelines. A visual overview of this guidance can be found in Appendix A: IMBA Trail Development Field Guide.

The Bicycle Rule also addresses bicycle use on administrative roads that are closed to motor vehicle use by the public, but open to motor vehicle use for administrative purposes. The Bicycle Rule requires that bicycle use may be authorized on administrative roads upon a written determination that such bicycle use is consistent with protection of the park area's natural, scenic and aesthetic values, safety considerations and management objectives, and would not disturb wildlife or park resources. The Bicycle Rule allows the use of bicycles on park roads that are open for motor vehicle use by the general public.

2.4.2 BICYCLE USE UNDER ALTERNATIVE 2

Alternative 2 (the NPS-preferred alternative) would allow bicycle use on the proposed Pullman Avenue Trail Connection, which would require trail construction activities. No additional roads or trails in the park would be designated for bicycle use under alternative 2, and alternative 2 does not include other modifications to any existing park trails. The Pullman Avenue Trail Connection would be considered a new trail under the Bicycle Rule. Where the proposed multi-use trail crosses or intersects other park trails closed to bicycle use, signage would clearly indicate allowed uses and restrictions at those intersections.

The NPS considered the proposed multi-use trail's consistency with the parameters of the Bicycle Rule in this EA. The superintendent has determined that construction of the Pullman Avenue Trail Connection is consistent with the Bicycle Rule and would have important benefits for recreation and visitor experience, and localized, minor impacts on natural resources in the park.

According to the Bicycle Rule, the NPS must evaluate the suitability of the trail surface and soil conditions for accommodating bicycle use. If well designed, built, and maintained, a sustainable trail minimizes braiding, seasonal muddiness, and erosion. This EA incorporates a sustainable trail design for the proposed multi-use trail under alternative 2. It minimizes "bike-optimized" features in lieu of shallower grades and wider turns to support user safety, reduce water pooling and erosion, and reduce the overall maintenance costs associated with more complex features. Soil conditions in the park are well-suited to trail development due to the shallow soil depths and stable bedrock.

Park planning documents must consider the cost of initial construction as well as ongoing maintenance in the park. As such, a lifecycle cost estimate by trail segment and type for alternative 2 was developed and includes general annual maintenance costs and planning level cost estimates. The cost estimate included

assumptions to account for uncertainties at this stage in the planning process, including a 10% contingency cost. Funding for construction of the proposed multi-use trail segment included in alternative 2 would be provided by the City through grant programs. Funding for maintenance of the trail would be the responsibility of the City with support from community volunteer groups. Table 2-1 provides a summary of the cost estimate conducted for the proposed multi-use trail that would be constructed under alternative 2.

TABLE 2-1: PULLMAN AVENUE TRAIL CONNECTION ESTIMATED COSTS

Expense Type	Distance (miles)	Estimate	Contingency	Total
One-time construction costs	0.65	\$20,000–\$30,000	10%	\$22,000–\$33,000
Annual operating and maintenance costs	0.65	\$1,500	10%	\$1,650 annually

2.4.3 IMPACTS ASSOCIATED WITH BICYCLE USE

In Chapter 3: Affected Environment and Environmental Consequences, the NPS describes the impacts to Geologic Resources and Soils, Species of Concern, Access, Traffic, and Parking, Visitor Use and Experience, and Socioeconomic Impacts associated with the proposed trail allowing for bicycle use. The multi-use trail segment that would be constructed under alternative 2 was evaluated based on suitability of the trail surface and soil conditions; lifecycle maintenance costs; safety considerations; strategies to prevent or minimize user conflicts; and methods of protecting natural and cultural resources.

2.5 MONITORING GUIDELINES AND MITIGATION MEASURES FOR THE PROPOSED ACTION

Congress has charged the NPS with managing the lands under its stewardship “in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (NPS Organic Act, 54 U.S.C. § 100101(b) *et seq.*). As a result, the NPS routinely evaluates resources and implements mitigation measures whenever conditions are present that could adversely affect the sustainability of national park system resources.

Table 2-2 details PDC and best management practices (BMPs) incorporated into alternative 2 in order to minimize potential adverse impacts from construction and implementation of the NPS-preferred alternative. The PDC and BMPs are considered part of, and therefore required elements of, the alternative selected by the responsible official (the park superintendent).

PDC and BMPs come from federal, state, and local laws, regulations, and policies; NPS professional and scientific recommendations; or from experience in implementing similar projects. The bulk of the PDC and BMPs provided in Table 2-2 are considered common practices for trail construction projects to prevent or decrease potential resource impacts (see also Appendix A: IMBA Trail Development Field Guide). They are highly effective methods that can be planned in advance and adapted to site conditions as needed. The potential effects of implementing the proposed action (disclosed in Chapter 3) are disclosed under the assumption that these PDC and BMPs are applied.

TABLE 2-2: PROJECT DESIGN CRITERIA AND BEST MANAGEMENT PRACTICES

Project Phase	PDC and BMPs
<p>General (Applies to All Phases)</p>	<ul style="list-style-type: none"> • The proposed multi-use trail shall be designed and constructed to drain runoff away from wetlands and stream channels. • Trails shall be rock armored or elevated in steep sections or where erosion typically occurs. • The trail shall not be routed directly down the fall line. Drainage structures shall be located above steep stretches of trail to minimize water routed into these areas, and the frequency of such structures shall increase in steep areas. • To provide for proper drainage, the trail shall not be routed near the bottom of ephemeral draws or other low spots. • The trail shall be designed and constructed using natural topography to create grade reversals or rolling dips to provide adequate drainage. Where grade reversals or rolling dips are not practical, check dams, water-bars, and sediment traps shall be utilized. • The trail shall be managed with seasonal closures as needed to avoid the development of ruts when soils are saturated. • Vegetative buffers of approximately 20 feet shall be maintained adjacent to intermittent or perennial drainages and wetland areas. • All equipment and vehicle washing will be performed off-site.
<p>Pre-Construction</p>	<ul style="list-style-type: none"> • A site visit and field-fitting of planned projects, paths, and roads shall occur by NPS and IMBA staff before construction may begin. • NPS staff shall provide noxious weed management guidelines for use by the contractor prior to implementation of any ground-disturbing activities. Pretreatment of existing noxious weed infestations within the project area shall occur prior to project implementation when possible. • NPS staff and contractor shall determine appropriate means of erosion control during pre-construction site visit. • The project administrator shall inspect all off-road equipment prior to entering NPS lands to ensure that they are free of soil, seeds, vegetative matter, or other debris that could contain or hold noxious weed seeds. "Off-road equipment" includes all construction machinery, except for trucks, service vehicles, water trucks, pickup trucks, cars, and similar vehicles. • Prior to commencement of any earthwork, flagging would be located on the site to ensure that machine-operated activity is focused on targeted areas only. Leave trees and trail clearing limits shall be adequately marked. • NPS staff shall train IMBA trail crew members on identification of harperella and other species of NPS concern and provide guidelines on suitable plan of action should they be encountered.
<p>During Construction</p>	<ul style="list-style-type: none"> • International Mountain Bicycling Association trail-building guidelines shall be followed when constructing the mountain biking trail. See Appendix A. • If undocumented historic or archeologic resources are located during ground-disturbing activities or planning activities associated with approved construction activities, all construction in the immediate vicinity shall cease and properties shall be treated as specified in 36 CFR Part 800, Protection of Historic Properties. • If any previously undocumented threatened, endangered, proposed, or candidate species are encountered within the project area prior to or during project implementation, the NPS shall be notified. The NPS shall develop suitable protection measures to avoid or minimize impacts as appropriate. • Straight edges shall be avoided where possible when removing trees. Variable density cutting (feathering) and age and size class selection shall be utilized to create a more natural edge that blends into the existing vegetative structure. • Stumps in the trail tread and trail clearance corridor shall be cut as low as possible to the ground to avoid safety hazards.

TABLE 2-2: PROJECT DESIGN CRITERIA AND BEST MANAGEMENT PRACTICES (CONT.)

Project Phase	PDC and BMPs
<p>During Construction (cont.)</p>	<ul style="list-style-type: none"> • All construction activities shall be confined to daylight hours, excluding emergencies. • Construction activities will be halted while the ground is saturated following large rain events. • Restrict the removal of snags and coarse woody debris to that necessary to meet safety standards. Leave other snags and woody material on-site to benefit species dependent upon these habitat structural elements. Snags and nest trees identified during pre-construction wildlife surveys (conducted as needed) will be retained, unless they pose a hazard to human health; then they will be retained until the end of the nesting period if potentially occupied. • Unauthorized hiking and mountain biking trails developed by third parties shall be promptly deconstructed and reclaimed as they are discovered. • All hazardous waste materials such as oil filters, petroleum products, and equipment maintenance fluids will be stored in structurally sound and sealed containers in the hazardous materials storage area and segregated from the other non-waste materials. Secondary containment would be provided for all materials in the hazardous materials storage area and would consist of commercially available spill pallets. Additionally, all hazardous materials would be disposed of in accordance with federal, tribal, and state regulations. All personnel would be instructed, during tailgate training sessions, regarding proper procedures for hazardous waste disposal. Notices that state these procedures would be posted and the individual who manages day-to-day site operations would be responsible for seeing that these procedures are followed. Any waste generated would be properly disposed of in a trash bin, located on-site, and hauled off promptly at site closure. • Any waste generated would be properly disposed of in a trash bin located on-site and hauled off promptly at site closure. All outdoor trash containers and locations with food residue shall be bear proof. All food products stored outside of a building shall also utilize bear proof food containers. No food products or food containers shall be disposed of in larger roll-off type dumpsters. • Construction equipment and maintenance materials would be stored at the staging area. Nonhazardous materials such as silt fencing, tools, etc. would be stored in plastic containers within the storage area. • No food or drink shall be stored overnight in construction vehicles on site. All windows shall be kept closed and doors locked on all vehicles to prevent bear entry. • All major equipment and vehicle fueling and maintenance would be performed off-site. A fuel tank would be kept off-site at a staging area. Minor equipment maintenance only would occur on-site. Drums, stored on spill pallets, would be used to store any equipment fluids generated from maintenance activities. Absorbent, spill-cleanup materials and spill kits would be located at the staging area. All equipment receiving maintenance and vehicles and equipment parked overnight would have drip pans placed beneath them. • Workers shall not bring dogs or other pets on NPS lands during construction.
<p>Post-Construction</p>	<ul style="list-style-type: none"> • Trail edges will be promptly revegetated upon completion of trail construction. • All multi-use trails shall have appropriate signage to direct uphill and downhill traffic and prevent user conflicts. A sign plan shall be reviewed and approved by Hot Springs National Park prior to installation of signage. • Some of the slash generated from tree-removal operations may be mulched, and the mulch applied to the surface of disturbed areas for both temporary and permanent stabilization. Invasive vegetation shall not be mulched and spread when it is in seed. • Downed woody debris resulting from construction activities should not be left in place due to concerns about fuel loading and potential for exacerbated wildfire impacts. • All areas disturbed by construction shall be re-vegetated with native plant species using a NPS-approved seed mix, and shall meet ground cover standards within three years after completion of project construction. All mulch used in re-vegetation efforts shall be certified to be free of weed species.

TABLE 2-2: PROJECT DESIGN CRITERIA AND BEST MANAGEMENT PRACTICES (CONT.)

Project Phase	PDC and BMPs
Post-Construction (cont.)	<ul style="list-style-type: none"> • Noxious weed infestations shall be monitored and treated for three years after project completion or until weed populations meet target thresholds. All contractors shall be approved by NPS staff. • Annual trail maintenance shall include monitoring and maintenance of waterbars, ditches, cross drains, and other drainage features, as necessary. Monitoring of these features shall also occur during construction to ensure that impacts are minimized and drainage management is implemented. • If requested by the NPS or IMBA, a post-construction site visit will be convened.

2.6 ALTERNATIVES CONSIDERED BUT DISMISSED FROM DETAILED EVALUATION

No additional alternatives were proposed by the public or staff that warranted additional consideration.

2.7 NPS-PREFERRED ALTERNATIVE

The preferred alternative is defined in Department of the Interior NEPA regulations as the alternative that the NPS determines “would best accomplish the purpose and need of the proposed action while fulfilling its statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors” (43 CFR § 46.420(d)).

Identification of a preferred alternative is within the discretion of the NPS. The preferred alternative is alternative 2 because it would best address the purpose and need for the proposed action.

It is important to note that, when identifying a preferred alternative, no final agency action is being taken. The purpose of identifying a preferred alternative is to let the public know which alternative the agency believes would best meet the purpose and need for the plan at the time an environmental assessment is released.

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This chapter describes the affected environment, which is intended to document the existing conditions of the park. These descriptions serve as a baseline for understanding the resources that could be impacted by implementation of the proposed action. This chapter also includes an analysis of the environmental consequences or “impacts” of the no-action alternative and alternative 2 immediately following the affected environment descriptions for each resource topic. The resource topics presented in this section correspond to the environmental issues and concerns described in Chapter 1: Purpose and Need.

In accordance with CEQ regulations, the environmental consequences analysis includes direct, indirect, and cumulative impacts (40 CFR § 1502.16); the intensity of the impacts is assessed in the context of the park’s purpose and significance; and any resource-specific context that may be applicable (40 CFR § 1508.27). The methods used to assess impacts vary depending on the resource being considered, but generally are based on a review of pertinent literature and park studies, information provided by on-site experts and other agencies, professional judgment, and park staff knowledge and insight.

The following terms are used in the discussion of environmental consequences to assess the impact intensity threshold and the nature of impacts associated with each alternative.

Type. Impacts can be beneficial or adverse. A beneficial impact is an impact that would result in a favorable change in the condition or appearance of the resource. An adverse impact is an impact that causes an unfavorable result to the resource as compared with the existing conditions.

Context. The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance usually would depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are also relevant.

Duration. Duration of impact is analyzed independently for each resource because impact duration is dependent on the resource being analyzed. Impacts may last for the implementation period, a single year or growing season, or longer. Impact duration is described as short-term, long-term, or permanent for each resource. For the purposes of this analysis, short-term and long-term impacts are defined for each resource.

Direct and Indirect Impacts. Impacts can be direct, indirect, or cumulative. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and occur later or further away but are still reasonably foreseeable. Direct and indirect impacts are considered in this analysis. Cumulative effects are discussed in the next section.

Intensity. This refers to the severity of impact. Impacts may be both beneficial and adverse. They may have implications on public health or safety. Intensity of impacts on unique characteristics of the

geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas should also be considered, as applicable.

For each impact topic analyzed, an assessment of the potential significance of the impacts according to context and intensity is provided in the “Conclusion” section that follows the discussion of the impacts under each alternative. The intensity of the impacts is presented using the relevant factors from the preceding list. Intensity factors that do not apply to a given resource topic and/or alternative are not discussed.

3.1.1 CUMULATIVE IMPACTS METHODOLOGY

This EA also considers cumulative impacts, namely “the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR § 1508.7). Cumulative impacts have been addressed in this EA by resource, and are considered for the no-action alternative and alternative 2. Because of the additive nature of cumulative impacts based on the incremental impacts of the federal action when added to other actions, if the federal action itself has no direct or indirect impacts, then no cumulative impacts would occur.

The following previous, ongoing, or reasonably foreseeable projects considered in the cumulative impacts analysis are relevant to the proposed action either spatially or temporally.

Regional Trail Connections

The **Southwest Trail** is a proposed multi-use trail connecting the City to Benton, Shannon Hills, and Little Rock. The trail will run along a former railroad line and connect the City to nearby cities and to Little Rock Central High School, a National Historic Site. Construction on the approximately 65-mile trail is expected to begin in 2018 and take two years to complete. The trail is expected to be a national attraction that will improve the health of residents who live in cities along the trail.

The **Hot Springs Creek Greenway Trail** is a partially completed multi-use path in the City. When completed, it will connect the transportation plaza in downtown to Lake Hamilton. The trail largely follows the creek and is separate from the roadway. Trailheads, both planned and existing, have access points from city neighborhoods.

Regional Bike Parks

The **Northwoods Urban Forest Park and Cedar Glades Park** trail network is a 44.6-mile trail network currently under construction on two City-owned parcels north of the park. The trail network, designed and constructed by IMBA, will be completed in phases. The first phase is expected to be completed in 2018. The trails will be optimized for mountain biking and IMBA is implementing the latest in trail design. The trail network is expected to draw many new visitors to the area. The project is jointly funded by Visit Hot Springs and the Walton Family Foundation and is being built by IMBA Trail Solutions. The proposed action, if constructed, would connect the trail network to the City’s Park Avenue neighborhood.

The City of Fayetteville recently approved the purchase of a 228-acre property with the intention that the area, known as **Millsaps Mountain**, would become a mountain bike park and destination for riders. The trail system would be connected to the **Razorback Regional Greenway Trail**.

Ongoing Trail Maintenance

Currently, the NPS maintains 25.5 miles of hiking trails in the park. Maintenance activities include hazard tree removal, placement of gravel or mulch for public safety and drainage reasons, removal of invasive and encroaching vegetation, addition or replacement of signage, and soil erosion management.

Regional Tourism and Economic Development

The **2015 Downtown Economic Development and Redevelopment Action Plan** for the City outlines goals and strategies to create a thriving economy in downtown. The plan's recommendations include infrastructure improvements (including to bike and pedestrian facilities), recruiting businesses, creating retailers and amenities to serve as a "trailhead for adventure tourists," and adding mixed-use developments.

The **Downtown Hot Springs Parking, Pedestrian, and Bicycle Enhancements Plan** was developed to better manage public parking, utilize private parking infrastructure, improve the visibility and accessibility of existing parking enhancements, and convert parking lanes to bike lanes, all while strategically expanding the parking inventory. The plan recommends bike lanes to connect the Hot Springs Creek Greenway Trail to the bike lanes that begin at the intersection of State Highway 7 and Whittington Avenue.

The **Highway 7 Improvements** are an Arkansas Department of Transportation (ArDOT) project intended to improve safety along Highway 7 north of the park. ArDOT proposed widening the roadway (to three lanes) and adding bike lanes from Desoto Park to Highway 7's intersection with State Highway 5. A public meeting was held in March 2018 and the project is scheduled for September 2019.

3.2 GEOLOGIC RESOURCES AND SOILS

3.2.1 AFFECTED ENVIRONMENT

The geographic setting of the project area is a ridgeline northeast of Sugarloaf Mountain with 800 to 900 feet of relief, located within the Arkansas Valley and Ouachita Mountains Regions. The project area is mostly situated in a band of the Missouri Mountain Shale Formation and Blaylock Sandstone. The Arkansas Novaculite Formation lies at the northern edge of the project area and the Polk Creek Shale and Bigfork Chert Formations lie to the south. More information on geologic resources can be found in the cultural resources survey found in the project file (Flat Earth Archaeology 2018).

The Missouri Mountain Formation is a shale interbedded with various amounts of conglomerate, novaculite, and sandstone. The shales are usually gray, green, black, or red and weather to buff, green, yellow, or reddish-brown. Thin beds of novaculite are present in the upper part of the unit. Few identifiable fossils have been found in the Missouri Mountain Shale. It reaches a maximum of about 300 feet in thickness (Arkansas Geological Survey 2015; USDA-NRCS 2018).

The Blaylock Sandstone consists of fine- to medium-grained sandstone of tan, dark gray, or greenish color, interbedded with dark-colored to black, fissile shale in the southern Ouachita Mountains. The sandstones are usually thin-bedded, but some intervals consist of fairly thick beds and contain small amounts of plagioclase, zircon, tourmaline, garnet, leucoxene, and mica. Fossils are rare: only graptolites and a few trace fossils have been reported. The formation ranges from as much as 1,200 feet thick along

the southwestern part of its outcrop area in Arkansas to only 5 to 20 feet of olive-gray shale to the north (Arkansas Geological Survey 2015; USDA-NRCS 2018).

The Polk Creek rocks are black, sooty, fissile shale with minor black chert and traces of gray quartzite and limestone. Graptolites are common in most of the shales in the formation. The Polk Creek Shale rests conformably on the Bigfork Chert. Its thickness ranges from about 50 to 225 feet (Arkansas Geological Survey 2015; USDA-NRCS 2018).

There are three recognized divisions of the Arkansas Novaculite Formation, which is an important geological and cultural resource of the park due to past American Indian development of novaculite quarries for tool manufacture. The Lower Division is a white, massive-bedded novaculite with some interbedded gray shales near its base. The Middle Division consists of greenish to dark gray shales interbedded with many thin beds of dark novaculite. The Upper Division is a white, thick-bedded, often calcareous novaculite. Microfossils are sometimes common in the Arkansas Novaculite. The formation may attain a thickness of up to 900 feet in its southern outcrops but thins rapidly to about 60 feet to the north (Arkansas Geological Survey 2015; USDA-NRCS 2018).

Soil cover is thin in the project area, and bedrock is exposed in many areas or covered with a thin layer of soil and leaf litter in others. Leaf litter covers the ground surface in most areas (Flat Earth Archeology 2018). The uppermost two soil horizons (A horizon, 0 to 3 inches; and E horizon, 3 to 7 inches) are largely silty clay loam, stony loam, and very gravelly silt loam. Predominant soil types in the project area include Bigfork-Rock outcrop complex, Bigfork-Yanush-Carnasaw complex, and Yanush-Avant complex (Flat Earth Archeology 2018; USDA-NRCS 2018). Slopes generally range from 3 to 60 percent (USDA-NRCS 2018).

Climatic conditions in Garland County are characterized by hot summers, cool winters, and variable year-round precipitation. In the winter, the average low temperature is 31 degrees Fahrenheit (°F) with an average high temperature of 54°F. In the summer, the average low temperature is 68°F with an average high temperature of 91°F. The annual precipitation is about 55.2 inches, with the greatest amounts of rainfall during April, November, and December (Flat Earth Archeology 2018; U.S. Climate Data 2018).

3.2.2 ABOUT THE ANALYSIS

To understand the impacts of this multi-use trail project on geologic resources and soils, potential effects were considered in both the short-term (construction phase) and long-term (trail use and maintenance phase). The spatial area of possible effects is the trail itself (4 feet in width) and the trail clearance corridor (approximately 4 feet on either side of the trail). Erosion due to use and climate and weather patterns was also considered as potential environmental consequences.

3.2.3 IMPACTS OF ALTERNATIVE 1: NO-ACTION

Under alternative 1, the park would maintain the existing system of hiking trails. No formal multi-use trail connection would be constructed from Pullman Avenue to the City property. Some additional impacts to soils would be expected from occasional use of the project area on undesignated/informal trails that would likely be created after the Northwoods trail system is complete. Impacts to geologic resources of the park are anticipated to be negligible.

Cumulative Impacts

Ongoing hiking trail use and related trail maintenance around the park would continue, resulting in improved or maintained soil conditions in areas of high public use or erosion. In addition, cumulative impacts to soils would continue due to the creation of undesignated/informal trails. These impacts would most likely occur in a localized area connecting Pullman Avenue to Northwoods.

Conclusion

Under alternative 1, the park would continue to maintain its existing network of hiking trails. Some impacts to soils may occur due to the creation of undesignated/informal trails. Negligible impacts to geologic resources would be expected. Cumulative impacts to soils and geology would also continue from ongoing trail use and maintenance in other areas of the park.

3.2.4 IMPACTS OF ALTERNATIVE 2: PROPOSED ACTION

During the construction phase of the project, there would be localized impacts to geology and soils. Trail crews and equipment would disturb the top soil horizons in order to create a 4-foot-wide trail. The trail would be constructed at 3–5% average grade for ease of travel by multiple uses and ability levels and to reduce soil erosion via proper water/drainage management for rain events. Due to the very thin layer of soil above the bedrock and lack of existing understory vegetation, minor impacts to park soil resources are expected. Geologic resource impacts are expected to be negligible, as trail construction methods would avoid disturbance to geologic features whenever possible.

During the operation/use and maintenance phase of this proposed action, there would be long-term adverse impacts to soil resources as trail users, including hikers and mountain bikers would disrupt the uppermost soil horizons within the trail corridor.

The total soil disturbance for the multi-use trail itself would be 0.31 acre, with some additional soil disturbance likely in the trail clearance corridor (up to an additional 0.62 acre). PDC and BMPs include proper trail design and maintenance so that long-term impacts would be localized in geographic scope and minor in intensity (see Table 2-2).

Trail users may occasionally step or ride off the designated trail and into the trail clearance corridor. Therefore, occasional soil disturbance may occur in the trail clearance corridor when users leave the trail tread (usually to slow down or to let other users pass). Impacts to geologic resources due to this occasional use of the trail clearance corridor are unlikely and would be negligible.

Soil erosion may increase if rainstorms become more frequent or precipitation intensity increases. If this were to occur, additional mitigation or trail maintenance may be necessary. Climate change may also affect the seasons during which trail users might use the new trail connection, changing the timing of possible soil erosion. The effects of climate-induced impacts to soils would be hard to separate from trail use impacts on soils due to regular use but may occur in the future to a small degree. Climate change impacts on geology in the context of the proposed trail are unlikely.

A parking area would be constructed along Pullman Avenue, contingent upon construction of the multi-use trail. All ground disturbance to construct the parking area would occur on city land. The road would be widened by approximately 2 feet for a length of approximately 400 feet, resulting in a disturbance of

800 square feet (0.02 acre). An existing culvert on the south end of the parking lot would be extended by 10 feet to accommodate the wider roadway.

Cumulative Impacts

Trail use by hikers and bikers would result in a small, long-term adverse impact on soils, mainly through soil erosion. When added to the ongoing soil erosion in the park on other trails through use by hikers, equestrians, and via natural processes, there would be a long-term adverse cumulative impact on soils. Mitigative measures and BMPs would contribute a beneficial effect on cumulative soil erosion, reducing the effects of trail use on soil resources to some degree. Cumulative impacts to geology are anticipated to be negligible.

Conclusion

Short-term, adverse impacts to soil resources would occur during the construction phase of the proposed action, as trail crews and equipment would disturb upper soil horizons to construct the multi-use trail. PDC and BMPs during construction would reduce the extent and intensity of these impacts. In the long-term, soil erosion would continue to occur through trail use and perhaps as a result of climate change-induced exacerbation of severe rain events. Cumulative impacts on soils would result from construction of this trail when considered with the impacts on soils across the park from similar recreational activities. Impacts on soils would be minor in the long-term but would be mitigated to some degree through the use of BMPs and mitigative measures. Impacts on park geology are anticipated to be negligible.

3.3 SPECIES OF CONCERN

3.3.1 AFFECTED ENVIRONMENT

Two federally listed species and one candidate species are found or likely present in the park and may be impacted by the proposed action. No critical habitat for federally listed species is present.

Northern long-eared bat (*Myotis septentrionalis*) is a federally listed threatened mammal that has been confirmed in the park (FWS 2018a; NPS 2018f). These bats use caves and mines as hibernacula in winter, especially locations with small crevices and cracks. Summer habitats for the northern long-eared bats include caves, trees, and mines. They exhibit a preference for roosting locations on trees exhibiting crevices, cavities, and bark that is retained throughout the season. Like many other bats, they are threatened due to white-nose syndrome in particular; some areas have experienced declines of 99% of their population. They also are threatened by reductions in available habitat and due to mortality from wind turbines (FWS 2015).

Tricolored bat (*Perimyotis subflavus*) is a candidate species for listing as a threatened or endangered species under the Endangered Species Act. There is an active petition for this species to be listed, which received a “substantial” 90-day finding late in 2017 (Center for Biological Diversity 2016; FWS 2018d; Federal Register 2018). Comprehensive review of this mammal is currently underway (Federal Register 2018). This small bat is an insectivore and is nonmigratory, preferring temperature-stable caves for their hibernacula. Their populations have been decimated by white-nose syndrome and human-caused declines in available habitat (Center for Biological Diversity 2016). They roost and use habitat in a wide range of ecosystems across the eastern and midwestern U.S., including open hardwood forests like those found in the park. Tricolored bat is present in the park and may be affected by the proposed action.

Harperella (*Ptilimnium nodosum*) is a federally listed endangered plant that is probably present in the park (FWS 2018a; NPS 2018g). This small perennial herb is a member of the carrot family and has white flowers. It is found in moist locations with stable water levels such as ponds, rivers, or impoundments. Changes in water level can desiccate the plant and cause mortality (FWS 2011).

3.3.2 ABOUT THE ANALYSIS

To understand possible impacts of the proposed action on species of concern, the extent of habitat loss, disturbance (both short- and long-term), and cumulative effects were considered. Species profiles and other pertinent information from the U.S. Fish and Wildlife Service were gathered to provide a general assessment of likely habitat in the project area.

Additional language was included below to provide effects determinations so that this environmental assessment could also meet the obligations of the NPS under Section 7 of the Endangered Species Act. This will allow park staff to use this document for consultation with U.S. Fish and Wildlife biologists if needed. See Table 3-1 for summary of Section 7 determinations.

3.3.3 IMPACTS OF ALTERNATIVE 1: NO-ACTION

Under the no-action alternative, the proposed action would not be undertaken. There would be no direct or indirect effects of trail construction, use, or maintenance on species of special concern.

Cumulative Impacts

Because there would be no direct or indirect effects of the no-action alternative on species of special concern, there would be no cumulative impacts.

Conclusion

Under the no-action alternative, there would be no direct, indirect, or cumulative effects of trail construction, use, or maintenance on species of special concern.

3.3.4 IMPACTS OF ALTERNATIVE 2: PROPOSED ACTION

Under the proposed action, some vegetation removal would occur for the development of the multi-use trail tread (0.31 acre), the trail clearance corridor (up to 0.62 acre), and parking lot infrastructure on City lands. Trees and other larger vegetation would be preserved whenever possible, but both live and dead trees would be removed during construction. Hazard tree removal (e.g., dead or dying trees that have fallen across the trail) would occur during trail maintenance in order to provide a safe, obstacle free trail for human use. Hazard tree removal therefore may reduce the number and type of trees available for northern long-eared bat and tricolored bat habitat. If it were needed, hazard tree removal would have a long-term adverse impact on bat habitat in the park. This impact is expected to be minor and localized to the trail and trail clearance corridor. The project *may affect but is not likely to adversely affect* northern long-eared bats and tricolored bats in the park. Population-level impacts to these bats would not occur.

Potential impacts to harperella are unknown but are likely to be negligible under the proposed action. Harperella habitat in the project area is not likely due to the drier, upland soils found in the project area compared to the moist habitats preferred by the plant. PDC have been included as a required component of this project so that if trail crews encounter the plant during construction, impacts would be avoided.

The project *may affect but is not likely to adversely affect* harperella in the park, if it is found there. Population-level impacts would not occur.

Impacts to all three species of concern would be mitigated through the use of PDC and BMPs to identify the species and protect their habitats during construction, maintenance, and use of the proposed trail (see Table 2-2).

Cumulative Impacts

Habitat alteration or destruction and white-nose syndrome are the largest threats to northern long-eared bat and tricolored bat viability. The impacts of the proposed action would add a small increment of adverse impacts to the other past, present, and reasonably foreseeable impacts on these bats’ survival. The proposed action would have a negligible impact on harperella viability, if it is found in the park, so the contribution of the proposed action to the total cumulative impacts would also be negligible.

Conclusion

Minor adverse impacts to northern long-eared bat and tricolored bat habitat may occur as a result of hazard tree clearing during construction and maintenance of the proposed action. Negligible impacts to harperella are anticipated. Impacts to all three species of concern would be mitigated through the use of PDC and BMPs to identify the species and protect their habitats during construction, maintenance, and use of the proposed trail.

Section 7 Effect Determination Summary

The proposed action *may affect but is not likely to adversely affect* federally listed and candidate species at the park (see Table 3-1). Population-level impacts would not occur.

TABLE 3-1: DETERMINATION OF EFFECTS FOR FEDERALLY LISTED SPECIES

Common Name, <i>Scientific Name</i>	Present in Hot Springs National Park?	Listing Status	Section 7 Effect Determination*
Northern long-eared bat <i>Myotis septentrionalis</i>	Confirmed	Threatened	MA/NLAA
Harperella <i>Ptilimnium nodosum</i>	Likely	Endangered	MA/NLAA
Tricolored bat <i>Perimyotis subflavus</i>	Confirmed	Candidate	MA/NLAA

*MA/NLAA = May Affect, Not Likely to Adversely Affect

3.4 ACCESS, TRAFFIC, AND PARKING

3.4.1 AFFECTED ENVIRONMENT

Access

Hot Springs National Park is located within and around the City of Hot Springs, Arkansas. The park has no gated entrances and park visitors enter the park in a variety of ways. By Bathhouse Row, visitors park in downtown Hot Springs and walk onto park property. Bathhouse Row is located directly across the street from downtown Hot Springs and all parking is located in the City itself. The rest of the park is typically accessed by driving on the roads that run through the park and parking in one of the designated areas. Roads within the park are a mixture of NPS roads, city roads, county roads, and state highways. The park roads connect points within the park, the city streets and county roads connect points in the park to nearby neighborhoods, and the state highways provide access from neighborhoods and the greater region.

The lower section of the park, with Hot Springs Mountain, North Mountain, and West Mountain, has a dense network of park roads that provide access to the many hiking trails and points of interest. The upper section of the park, containing Sugarloaf Mountain and the Fordyce Hills, is more difficult to access via vehicle. Black Snake Road, Cedar Glades Road, and State Highway 7 (Park Avenue) do run through this area but are very far apart, with Black Snake Road 2.8 miles via the Sunset Trail from Cedar Glades Road, and Cedar Glades Road 4.0 miles on the trail from State Highway 7. North of the Park, Cedar Glades Road veers to the west and there is limited access to the park from the northeast. Many neighborhood streets dead-end at the park boundary, although few of those dead-ends connect to park trails.

A city bus system, Intracity Transit, stops in the park and at points throughout the city. The Green route stops on 270 Business south of downtown, 70 Business east of downtown, in downtown and at Bathhouse Row, and along Whittington Avenue within the National Park, before heading east and stopping and turning around near Pullman Avenue. The city's two other routes connect to the Green route at the downtown transportation plaza and have stops at hospitals, neighborhoods, and commercial centers (City of Hot Springs 2018).

State Highway 7 and US Highways 70, 70 Business, and 270 are the major roadways into the City. State Highway 7 provides access from the north and south, passing through the park's northeastern edge as Park Avenue and turning into Central Avenue in downtown Hot Springs, where Bathhouse Row is located. US 70 runs east-west and connects Hot Springs to Interstate 30 to the east, the primary route from Little Rock and points east. Close to the city, US 70 veers south and US 70 Business provides a direct route to downtown. US 270 runs northwest to southeast and connects Hot Springs to Ouachita National Forest and Pine Bluff. Interstate 30, at its closest point, is about 20 miles southeast of town, creating easy access from Little Rock (one-hour drive with little traffic), Memphis (three-hour drive with little traffic), and Dallas (four-hour drive with little traffic).

By bicycle, the Hot Springs Creek Greenway Trail is a paved off-street trail that runs from downtown Hot Springs to Seneca Street, and will reach Lake Hamilton upon completion. There are designated bike lanes along State Highway 7 (Park Avenue) from Bathhouse Row to beyond Pullman Avenue. Central Avenue,

along Bathhouse Row, is a designated bicycle route. The park roads are open to cyclists as well, although most are narrow and have a limited shoulder. Currently, all park trails are closed to bicycle use.

Traffic

Current traffic congestion in the City is largely driven by National Park visitation. At peak visitation periods, such as summer weekends or during events, there is traffic, mainly in the downtown and Bathhouse Row area or along the major roadways to enter the city. Other areas of the city and park see minimal traffic congestion, even during peak periods (Hot Springs Area MPO 2010). This analysis includes traffic volumes collected by the ArDOT System Information & Research Division and the NPS.

AADT Volumes

The ArDOT provides Average Annual Daily Traffic (AADT) volumes, or the total volume of traffic on a road segment for one year, divided by 365 days. AADT volumes approximate the use of a given roadway on a typical day of the year. Therefore, the AADT volumes presented in Table 3-2 are likely lower than the actual volumes on a busy day at the park and/or in the City (weekends, events, etc.). AADT counts include both directions of travel. Table 3-2 provides 2016 AADT for seven locations around the. For exact locations, see Figure 2.

TABLE 3-2: PROJECT AREA AVERAGE ANNUAL DAILY TRAFFIC VOLUMES

Location Number	Location Name	AADT
#1	State Highway 7 between Reserve Street and Fountain Street (Bathhouse Row)	21,000
#2	State Highway 7 between Arbor Street and Whittington Avenue	15,000
#3	Pullman Avenue between Howe Street and State Highway 7	660
#4	State Highway 7 between Bloom Street and Coolidge Street	9,300
#5	State Highway 7 east of Highway 7 Spur (De Soto Park)	14,000
#6	Cedar Glades Road west of Wildcat Road	1,200
#7	Whittington Avenue between Walnut Street and Pine Street	4,100

Source: ArDOT 2016

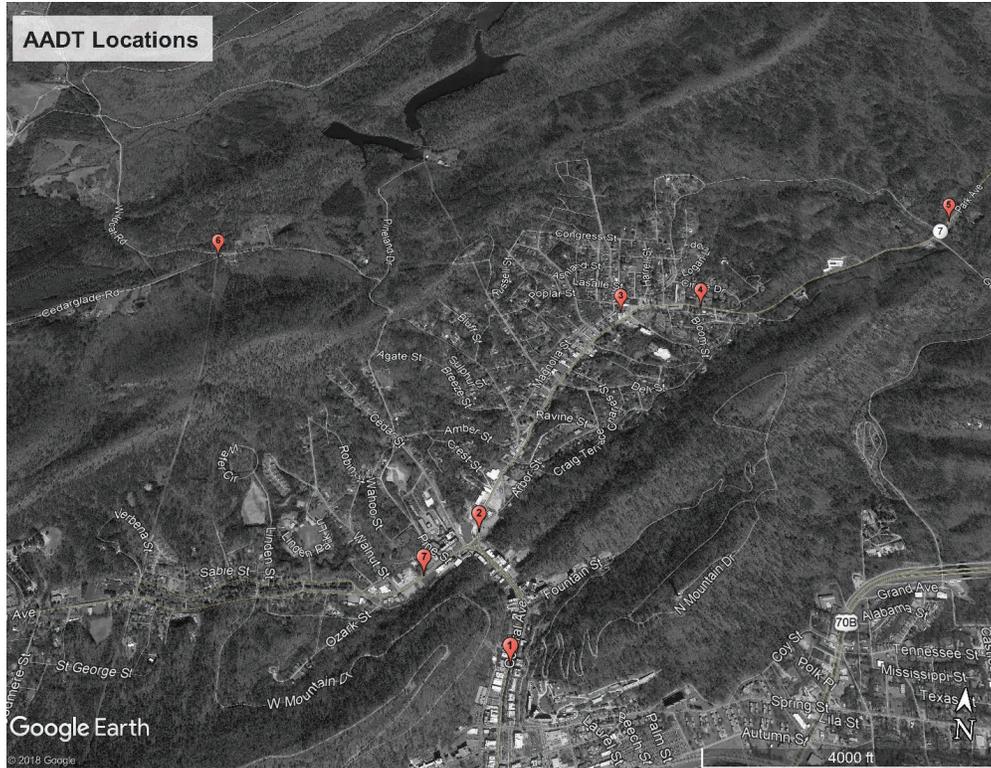


FIGURE 2: AVERAGE ANNUAL DAILY TRAFFIC VOLUME MEASUREMENT LOCATIONS

By comparing the traffic counts at adjacent or proximate locations, assumptions can be made about how vehicles are moving through the city. The highest daily traffic volume is at Location #1 (on Figure 2), in front of the bathhouses. Most of those vehicles either come from or continue north on State Highway 7 (Park Avenue) to Location #2. After Location #2, many vehicles on State Highway 7 turn into or out of the neighborhood, such as onto Pullman Avenue (Location #3), so there are significantly fewer vehicles on the State Highway 7 (Park Avenue) by Location #4. The AADT at Location #4, compared to Location #5, indicates that many vehicles use Highway 7 Spur to visit the Gulpha Gorge campground or as a more direct route into downtown Hot Springs from the northeast. Cedar Glades Road (Location #6), north of the park near the City Northwoods Urban Forest Park and Cedar Glades Park, currently has low traffic volumes, averaging only 1,200 vehicles per day. Whittington Avenue (Location #7), west of its intersection with State Highway 7 (Park Avenue and Central Avenue), is the access road to the West Mountain area of the park and sees medium use compared to other locations. The AADT on Pullman Avenue (Location #3) is low compared to other locations (only 660 vehicles per day) and likely declines further as it approaches the park boundary. (All data above from ArDOT 2016.)

Park Counts

The NPS collects traffic counts at designated locations throughout the park to determine park visitation. Inductive loop counters collect data every day of the year at six designated locations (NPS 2008; refer to Figure 3). Table 3-3 presents the total number of vehicles that passed through that point over the course of the year.

The vehicle counts on the park roads (Hot Springs Mountain Drive, West Mountain Drive, and West Mountain Summit Drive), are relatively low compared to total park visitation. This indicates that many park visitors remain in the bathhouse area and do not visit other areas of the park. Highway 7 Spur (Gorge

Road through the Park) does see more traffic. The park counts most of the vehicles on this road as non-recreation visitors, people who drive through the park to reach another destination. The park assumes that from May to October, 5% of vehicles are visitors to the park, and from November to April, only 1% are visiting the park (NPS 2008).

TABLE 3-3: NPS TRAFFIC COUNTS WITHIN HOT SPRINGS NATIONAL PARK

Location Number	Location Name	AADT
#1	Hot Springs Mountain Drive	128,062
#2	West Mountain Drive (north)	123,983
#3	West Mountain Drive (south)	144,429
#4	West Mountain Summit Drive	103,956
#5	Highway 7 Spur (north)	1,214,781
#6	Highway 7 Spur (south)	1,229,553

Source: NPS 2018a



FIGURE 3: NPS TRAFFIC COUNTS MEASUREMENT LOCATIONS WITHIN HOT SPRINGS NATIONAL PARK

Level of Service Ratings

In 2009, Level of Service (LOS) ratings were made for the state and US Highways in Garland County. LOS ratings are a qualitative traffic measurement of congestion. As these ratings were done in 2009 and park visitation has increased 21.6% since then, it is possible that congestion has worsened (NPS 2018b). LOS A represents free-flowing conditions while LOS F represents a total break-down in flow. LOS A-C are considered acceptable ratings.

State Highway 7 (Central Avenue) directly in front of Bathhouse Row, for a very short segment, is LOS F. State Highway 7 (Park Avenue) from downtown to Highway 7 Spur, including the intersection of Pullman Avenue and Park Avenue, is LOS C, as is Highway 7 Spur from State Highway 7 to 70 Business. State Highway 7, further northeast, is LOS D (Hot Springs Area MPO 2010).

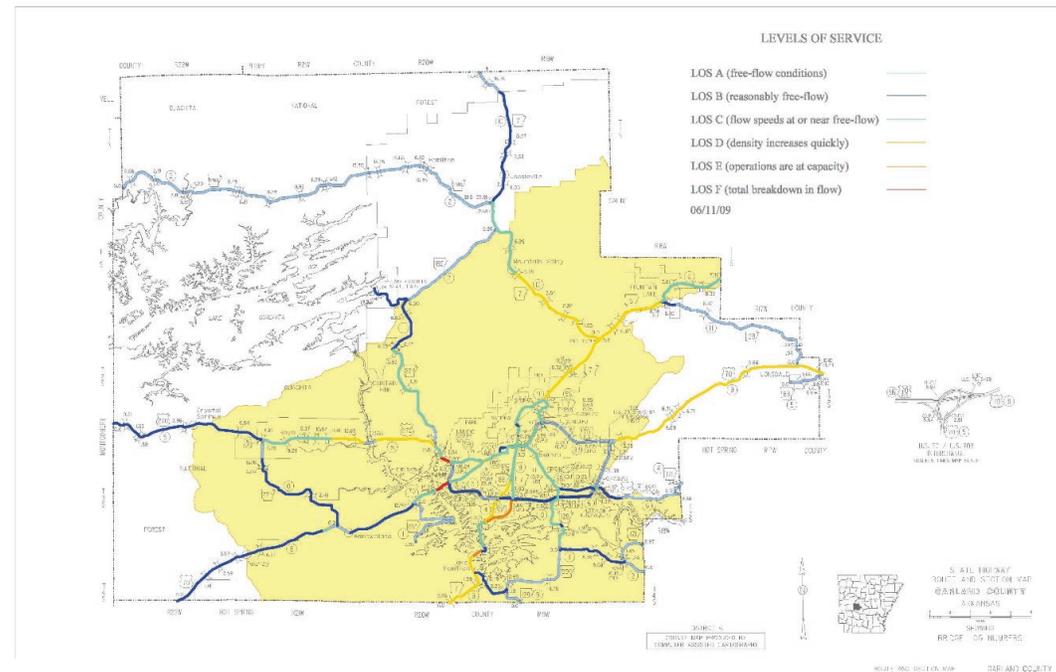


FIGURE 4: LEVELS OF SERVICE IN THE HOT SPRINGS NATIONAL PARK VICINITY

Source: Hot Springs Area MPO 2010

Parking

Visitors to the national park either park in the surface lots within the park or on the streets, parking garages, and surface lots in the City. Most parking areas available within the park are relatively small, with most designed to accommodate a few hikers at each trailhead (refer to Table 3-4). The largest parking area in the park is located at Hot Springs Mountain Tower and has 46 spaces. Additionally, the Gulpha Gorge Picnic Area provides 27 parking spaces, along with 12 spaces at the adjoining amphitheater. Elsewhere in the park, small pull-outs accommodate between five and ten vehicles (refer to Table 3-4). Most of the park roads are narrow and cannot accommodate cars parked on the shoulder. On-street parking is available at the Whittington Spring/Mountain Top trailhead along Whittington Avenue. The Whittington Avenue parking is the primary parking area for equestrian transport vehicles; no other in-park areas see regular use and demand is low.

TABLE 3-4: PARKING LOTS IN HOT SPRINGS NATIONAL PARK

Location	Spaces
Hot Springs Mountain Tower	46
Gulpha Gorge Picnic Area	27
Gulpha Gorge Amphitheater	12
North Mountain Overlook	5
Happy Hollow Spring	5
West Mountain Summit Overlook	5
Picnic Shelter – West Mountain Drive	9
Gulpha Gorge Trailhead	4
Sunset Trail/Black Snake Road	5–10 (dirt lot)
Sunset Trail/Cedar Glades Road	5–10 (dirt lot)

Visitors to the Bathhouse Row area park on City streets, in the public parking garage, or in private lots. A count by the Arkansas School for Mathematics, Sciences, and Arts found 936 recorded parking spaces in Downtown Hot Springs. Of those spaces, 320 are on-street parking along Central Avenue, Fountain Street, and adjacent cross streets, and they tend to fill up quickly, especially on weekends. There is a 245-space free parking garage operated by the City on Exchange Street. That garage, along with many other smaller off-street parking facilities, is underutilized except during special events. The 2017 Downtown Hot Springs Parking, Pedestrian, and Public Enhancements Plan recommended that the City improve the visibility, access, and availability of off-street parking (City of Hot Springs 2017).

3.4.2 ABOUT THE ANALYSIS

In order to analyze the potential impacts of each alternative on the access, traffic, and parking in the region, potential impacts to local tourism, transportation routes, and parking options were considered.

3.4.3 IMPACTS OF ALTERNATIVE 1: NO-ACTION

Under the no-action alternative, access routes and parking areas for the park would not change and there would not be increased hiking access. The Pullman Avenue Trail Connection would not be built, and the park's trail system and access points would be unchanged. No additional impacts to access, traffic, and parking would be expected.

Cumulative Impacts

Under the no-action alternative, there would be no direct or indirect effects of the action on access, traffic, and parking. Therefore, there would be no cumulative impacts.

Conclusion

Under the no-action alternative, visitors' access and parking at the park would not change, and overall, implementation of alternative 1 would have no impact on access, traffic, and parking at the park. There would be no cumulative impacts on access, traffic, and parking.

3.4.4 IMPACTS OF ALTERNATIVE 2: PROPOSED ACTION

Under the proposed action, the Pullman Avenue Trail Connection would be built, creating an additional access point into the park. The existing gate on Pullman Avenue would be replaced with bike-friendly bollards. Residents of the Park Avenue neighborhood would have convenient access to the park and could walk or bike to the trailhead. Other area residents or visitors could also use the trail to access the park or the Sunset Trail. Trail users could park in the neighborhood or ride a bike, walk, or take the Intracity bus system's "green route" to the trail.

The proposed action would have long-term, beneficial impact on parking and access by offering visitors and residents an additional access point at a hard-to-reach part of the park. It would slightly reduce the parking demand at other trailheads by dispersing park visitors and offering the Park Avenue neighborhood a local access point. Overall, long-term, beneficial impacts are expected from alternative 2 on parking and access to and through the park.

The Pullman Avenue trailhead located on City lands (the Connected Action) would provide approximately 18 parking spaces for visitors, including two accessible spaces, further contributing to the long-term, beneficial effects of the project.

Cumulative Impacts

The past, present, or reasonably foreseeable future projects that are expected to have cumulative impacts to access, traffic, and parking around the national park are the Northwoods/Cedar Glades trail system, Highway 7 improvements, and improvements associated with the Downtown Hot Springs Parking, Pedestrian, and Bicycle Enhancements Plan.

The Northwoods/Cedar Glades trail system is expected to attract additional visitation to the area and moderately adversely impact traffic in and around the park, including downtown Hot Springs and Cedar Glades Road. Additionally, the Parking, Pedestrian, and Bicycle Enhancement Plan recommends bike lanes and pedestrian networks around downtown Hot Springs, which once implemented, would encourage non-motorized transportation, slightly decreasing the expected traffic increases from the new trail system. Following the Highway 7 improvements north of the park, bike lanes would encourage non-motorized transportation to the park from the north as well. The proposed action, by allowing trail users to access the Northwoods trail network from an additional access point, including by bicycle pending compliance with the Bicycle Rule, would alleviate some of the expected traffic increases in downtown Hot Springs and along Cedar Glades Road. The proposed action would contribute a small benefit to the total adverse impacts of increased traffic at the park from the Northwoods/Cedar Glades trail system.

Given the existing abundance of parking in the City and the park, the trail system at Northwoods Urban Park and Cedar Glades Park is not expected to change the general availability of parking in and around the park. It is expected that with the trail system and the multi-use trail connection, many park visitors would park at the Pullman Avenue trailhead. However, the proposed trailhead facilities are designed to

accommodate this expected demand. The implementation of the enhancements in the City’s Parking, Pedestrian, and Bicycle Enhancement Plan would lead visitors to better utilize the existing parking supply, resulting in a beneficial impact. The proposed action, by offering an additional access route to the park and bike trails, may slightly decrease the parking demand at existing parking areas around the park, while increasing the demand at the proposed Pullman Avenue trailhead. The proposed action would therefore contribute a small, beneficial impact to the total beneficial effects of the parking-, access-, and traffic-related cumulative impacts.

Conclusion

Overall, the proposed action would be beneficial to access, traffic, and parking in the park. Alternative 2 would provide an additional route to access the park. Considering the cumulative impacts, the proposed action is expected to slightly lessen the projected traffic increases and slightly disperse the parking demand in the short term. However, this dispersion and new access point would likely be offset by the number of new users desiring to access the trail in the long term.

3.5 VISITOR USE AND EXPERIENCE

3.5.1 AFFECTED ENVIRONMENT

Hot Springs National Park Visitation

The park is a heavily visited park famous for its thermal waters. Most of the park visitors come to visit “The American Spa,” or Bathhouse Row, a strip of 19th century bathhouses open to the public. The park averaged about 1.45 million recreation visitors per year from 2012 to 2017. The number of visitors has been growing at a rate of 3.7% per year, with visitation above 1.5 million in 2016 and 2017 (NPS 2018b).

Beyond Bathhouse Row, the primary destination for most park visitors, many also visit the Hot Springs Mountain Tower and drive the scenic park roads around Hot Springs Mountain and North Mountain. Visitors to the park can also hike or ride a horse on the existing trails, or bike on the park roads. Given the park’s proximity to the City, many park visitors combine their trip with other activities in the region, such as exploring historic downtown Hot Springs, hiking and mountain biking in the nearby state parks and national forest, and visiting City museums, gardens, horse racing and gaming facilities, and theme parks. The local community also visits the park frequently, primarily to hike, run, or for equestrian use on park trails.

Peak visitation to the park occurs in June, July, and August. Visitation is lowest in January and February. In 2017, August visitation was 2.75 times January visitation, with ~215,000 visitors in August, compared to ~78,000 in January. In general, winters are mild and there are opportunities for year-round recreation at the park. Many people also use the park roads as routes to other destinations rather than a visit to the park; in 2017, the park counted 2.45 million such visitors (NPS 2018c).

Of the park visitors, very few spend the night in the park. In 2017, only 24,000 park visitors, or 1.6% of total visitors camped in the park. Of the overnight visitors, 94% were RV camping while the remaining 6% were tent camping. There are additional campgrounds and lodging in and around the City.

Area Visitation

The City sees over 2.1 million visitors per year (Visit Hot Springs 2018). The City (including park visitors) is the top tourist destination in Arkansas. Aside from the park, popular attractions include Oaklawn Racing and Gaming, Magic Springs Theme and Water Park, Lake Catherine State Park, Lake Ouachita State Park, the Mid-America Science Museum, and the Gangster Museum of America. The City also hosts festivals, events, parades, and conventions throughout the year that draw visitors to the City.

As of 2013, overnight visitors are primarily from Arkansas (21%), Texas (20%), and other states that border Arkansas. For the most part, Hot Springs is a long weekend destination for the region, with the average length of stay 3.1 days. However, an increasing number of visitors are from further away, with 6% of 2013 visitors from California and 4% from Illinois (Longwoods 2014).

Statewide, Arkansas had 19.6 million overnight visitors in 2016. The primary purpose for travel is visiting friends/relatives (42.2% of 2016 trips) but recreation/entertainment, as the trip purpose, is growing. In 2016, 31.2% of travelers listed recreation/entertainment, up from 20.9% in 2015 (ADPT 2017). Much of this growth is in outdoor recreation, a \$9.7 billion-dollar industry in the state (OIA 2017). State park annual revenues, for example, grew by 38% between 2011 and 2016 (ADPT 2017). The City, with a national park, state parks, a national forest, and lakes nearby, is attracting an increasing number of outdoor recreation visitors.

Trail System and Trail Use

The existing trail system in the park is divided into two zones: Hot Springs & North Mountain and West Mountain. The Hot Springs & North Mountain zone contains approximately 10 miles of hiking trails that connect such features as the Hot Springs Mountain Tower, Gulpha Gorge Campground, and other scenic overlooks with Bathhouse Row. Popular trails include the Grand Promenade Trail, Dead Chief Trail, and Goat Rock Trail. The West Mountain zone contains approximately 6 miles of hiking trails, including the Canyon Trail, Oak Trail, and Whittington Trail.

In addition to the North and West Mountain zones, the Sunset Trail completes a circuit of the park near the inner edge of the park boundary. The Sunset Trail is the longest trail in the park, covering approximately 10 miles that are open to hiking and equestrian use. Due to the length of the trail, it is usually accessed in three separate sections. The first section (2.9 miles) traverses West Mountain. It has several overlooks of the southern part of Hot Springs and Lake Hamilton. The second section (2.8 miles) crosses Sugarloaf Mountain with views of Balanced Rock. Old roadbeds make up portions of this section of Sunset Trail. The third section (4.0 miles) crosses the Fordyce Hills area.

Cycling and hiking occur on many park roads; however, bicycle use is currently prohibited on all park trails. Horseback riding is allowed on unpaved trails only. All unpaved trails are open to hiking and equestrian use.

Biking is growing in popularity in the Hot Springs area and across the state of Arkansas. The Hot Springs area has three IMBA designated “Epic Rides” and the City is a bronze-level IMBA Ride Center. The northwest corner of the state has extensive mountain biking trail networks, providing new opportunities to both residents and visitors to the region. The region’s residents ride a bike at a rate well above the national average, with 27% of residents riding six+ days a year, compared to 16% nationally. In addition, 55% of the trail users come from outside the region, on-par with well-known biking destinations such as

Bend, Oregon, and Squamish, British Columbia. Overall, Northwest Arkansas mountain bike trail networks saw an estimated 90,000 to 150,000 riders in 2017 (BBC 2018).

3.5.2 ABOUT THE ANALYSIS

In order to analyze the potential impacts of each alternative on the visitor use and experience at the park and in the surrounding region, potential impacts to park visitation, recreational opportunities at the park, and regional tourism were considered.

3.5.3 IMPACTS OF ALTERNATIVE 1: NO-ACTION

Under the no-action alternative, the proposed action would not be undertaken. There would be no direct or indirect effects on the visitor use and experience. Visitors would have to find alternate routes to access the City's network of trails.

Cumulative Impacts

Because there would be no direct or indirect effects of no-action alternative on visitor use and experience, there would be no cumulative impacts.

Conclusion

Under the no-action alternative, there would be no direct, indirect, or cumulative effects of an additional trail on visitor use and experience.

3.5.4 IMPACTS OF ALTERNATIVE 2: PROPOSED ACTION

Under the proposed action, the addition of the Pullman Avenue Trail Connection would create new recreational opportunities in the park. Visitors to the area, interested in the new trail segment and new use type in the park (pending compliance with the Bicycle Rule), would also use the trail, creating a slight increase in park visitation.

The proposed action is expected to increase the number of park visitors, as some trail users would use the park trails on their way to the Northwoods trail system, to access the Sunset Trail, or walk the new park trail. The development of the Pullman Avenue Trail Connection to the Northwoods trail system is also expected to add to the system's appeal and drive additional visitation to both Northwoods/Cedar Glades and the park. Overall, there would be increased visitation at the park, some of which would be a result of the proposed action.

Given the 4-foot width of the multi-use trail, user conflict between cyclists and hikers is not expected. The new trail would also provide additional access to the Sunset Trail and a shorter hike to the Fordyce Hills area. Residents of the Park Avenue neighborhood are expected to frequent the trail for hiking and, pending approval, biking. This new, convenient access would lead to additional park visitation from neighborhood residents. The trail would be designed with low grades, wide tread, and an additional tread clearance corridor to accommodate users of all ability levels and minimize user conflict. If concerns do arise in a specific location, these would be dealt with on a case-by-case basis during trail maintenance activities. Hikers and equestrians would continue to have access to the entire existing network of unpaved trails in the park, and no other trails would be open to bicycle use. Allowing bicycles on this proposed multi-use trail may lead to unauthorized use on existing park trails. The new trail would be signed and

monitored at trail intersections to prevent unauthorized bicycle use on existing trails and to alleviate safety concerns that may be created by such use.

The Pullman Avenue trailhead located on City lands (the Connected Action), would provide restroom facilities, parking, and other visitor amenities. These trailhead amenities would enhance the visitor experience and may slightly increase park visitation by providing an intuitive and convenient trailhead experience.

Cumulative Impacts

The Northwoods/Cedar Glades trail system is expected to drive additional visitation to the Hot Springs area and the park itself, as many people visiting the area for the trail system could hike the park trails, take a scenic drive through the park, or visit Bathhouse Row while in downtown Hot Springs.

Including the development of the Northwoods/Cedar Glades trail system, there are many projects across Arkansas to expand recreational opportunities and multi-modal/non-vehicle travel. Bike trail systems and regional connector trails, such as the Razorback Greenway Trail and the Southwest Trail, are currently being developed. These projects are having a sizeable positive impact with both economic and health benefits, encouraging people to visit and spend money in the state and residents and visitors to participate in athletic activities (BBC 2018). The proposed action is also expected to encourage additional visitation and participation in activities that improve health. The proposed action would contribute a small benefit to the positive cumulative impacts of trail development in the state of Arkansas.

Conclusion

Under the proposed action, there would be additional ways for visitors to experience the park and a slight increase in visitation. The proposed action would contribute a small, beneficial effect to the total cumulative projects that enhance visitor use and experience in the region.

3.6 SOCIOECONOMIC IMPACTS

3.6.1 AFFECTED ENVIRONMENT

The trails project at Northwoods/Cedar Glades is estimated to cost between \$1,551,750 and \$2,012,650 (IMBA 2017). The 0.65-mile Pullman Avenue Trail Connection is estimated to cost \$20,000 to \$30,000.

As of 2016, the City has a population of 36,711. Garland County has a population of 97,332 (U.S. Census Bureau 2016a). The population of Garland County is growing slightly and is expected to reach 102,000 by 2030 (Arkansas Economic Development Institute 2015). The City and the surrounding county are increasingly becoming a destination for retirees, with people 65 and over making up 21.7% of the county's population. Comparatively, 15.7% of all Arkansas residents are 65 and over (U.S. Census Bureau 2016a).

With the park and an aging population, tourism and healthcare are the two primary sectors of the economy. Employees in accommodation and food services; arts, entertainment, and recreation; and retail trade are almost 40% of the county's workforce. The health care and social assistance industry, the largest industry by employees, employs an additional 21% of the county's workforce (Greater Hot Springs 2011). In 2013, tourism brought in \$523 million dollars to the City economy (Longwoods 2014).

Hot Springs National Park, drawing about 1.5 million visitors annually, generates significant revenue and jobs for the local economy. In 2017, park visitors spent \$97.9 million dollars in the area, supporting 1,490 jobs and creating \$126.6 million in total economic output. Park and area tourism does peak during the summer months, but most area businesses remain open year-round (NPS 2018e).

Garland County's household median income, \$40,111 in 2017, is close to the statewide average (\$42,336) and that of the surrounding counties (U.S. Census Bureau 2016b). However, the median home value in Garland, at \$122,300 as of 2011, is significantly higher than statewide and the surrounding counties, where median home values are around \$75,000 (Greater Hot Springs 2011). Many homes in the county are in seasonal use, ~8% compared to less than 2% statewide, contributing to the higher home prices (U.S. Census Bureau 2010).

In Arkansas, outdoor recreation and biking have become major contributors to the economy and increasingly draw tourists to the state. In 2016, outdoor recreation-related spending contributed \$9.7 billion to the state's economy, generating 96,000 jobs (OIA 2017). Mountain bike riders in Northwest Arkansas brought in \$51 million dollars to area businesses such as hotels, restaurants, and bike shops. The out of state riders visiting the region contributed \$27 million of the \$51 million total (BBC 2018).

3.6.2 ABOUT THE ANALYSIS

In order to analyze the potential impacts of each alternative on socioeconomic condition of the park area, potential impacts to the local population, area economy, and tourism were considered.

3.6.3 IMPACTS OF ALTERNATIVE 1: NO-ACTION

Under the no-action alternative, the Pullman Avenue Trail Connection would not be built and there would be no impacts on socioeconomics resulting from the action alternative.

Cumulative Impacts

Under the no-action alternative, the existing park hiking trail network would remain unchanged and there would be no impact to the socioeconomic condition; therefore, there would be no cumulative impacts.

Conclusion

Under the no-action alternative, there would be no direct, indirect, or cumulative socioeconomic effects of an additional trail.

3.6.4 IMPACTS OF ALTERNATIVE 2: PROPOSED ACTION

Under the proposed action, the Pullman Avenue Trail Connection would be developed. As discussed above, the Pullman Avenue Trail Connection and associated parking lot infrastructure on City lands would likely increase park visitation. These additional visitors would visit local businesses and support the local economy. Many of the expected trail users are local residents, who would receive health benefits from using the new trail. If a commercial service provider would require access through the park on the new multi-use trail (e.g., a local bike tour company), all NPS policies and guidelines on commercial use would apply. Direct and indirect socioeconomic benefits of the proposed action are anticipated to be

small and may not be directly measurable. However, the benefits are anticipated to be long-term and beneficial for the park and park-dependent businesses.

Cumulative Impacts

The trail system at Northwoods Urban Park and Cedar Glades Park is expected to attract additional visitors to the area. These additional visitors would have a sizeable positive impact on the local tourism economy. The world-class trail system could attract new residents to move to the City. The Pullman Avenue Trail Connection would provide an additional conduit between the Northwoods trail system and downtown Hot Springs, further encouraging Northwoods visitors to support the local economy and businesses operated by the park in downtown Hot Springs. A world-class trail system, with a connection trail from a residential neighborhood, would further encourage people to visit or relocate to the City. The proposed action would contribute a small benefit to the total positive cumulative socioeconomic impact.

Conclusion

Under the proposed action, there would be small, long-term direct and indirect socioeconomic benefits from additional visitation to the park. When considered as part of the cumulative socioeconomic changes in the region, the proposed action is expected to contribute a small but long-term socioeconomic benefit to the area.

CHAPTER 4: CONSULTATION AND COORDINATION

4.1 INTRODUCTION

The NPS places a high priority on public involvement in the planning process and on giving the public an opportunity to comment on the proposed action. Consultation and coordination with federal, state, and local agencies, as well as American Indian tribes, were also conducted to identify issues and concerns related to natural and cultural resources within the park. This chapter provides a summary of the public and stakeholder involvement and agency and tribal consultation that occurred in the preparation of this environmental assessment.

4.2 PUBLIC INVOLVEMENT, INCLUDING SCOPING

As required by NPS NEPA regulations, public involvement will occur throughout the EA process. A project scoping notice, dated January 10, 2018, was made available on the park website, and a press release was published by the NPS to notify the public. During the scoping period, a public open house was held by the park on January 30, 2018, at the Transportation Depot in Hot Springs, Arkansas, from 4:30 p.m. to 7:30 p.m.

Additional information was available on the park website and on the PEPC interface (available at: <http://parkplanning.nps.gov/projectHome.cfm?projectID=75408>). Comments were accepted from the following sources: email, letter, PEPC, open house, fax, phone, and in person at park offices.

The scoping period ended February 16, 2018. During the scoping period, 57 correspondences were received: 31 were submitted electronically via the PEPC, 25 were submitted in person (handwritten) at the public open house, and 1 was hand-delivered. A majority of correspondences were submitted by residents of the City, 10 of which self-identified as Park Avenue neighborhood residents.

All correspondences expressed support for the proposed Pullman Avenue Trail Connection. Notably, supportive correspondences were received from area citizens, Hot Springs Friends of the Parks (a city/community support organization), and approximately ten self-identified residents of the Park Avenue neighborhood. A selection of correspondences also conveyed willingness to participate in volunteer efforts. The proposed multi-use trail was generally considered a desirable amenity, expressed in three themes which are paraphrased as follows:

First, commenters noted that the proposed multi-use trail has the potential to revitalize the City and the Park Avenue neighborhood economically, by encouraging tourism and compelling prospective residents and workers to the City. One commenter cited the availability of existing trails as a factor in their decision to move to the Hot Springs community, while another credited outdoor recreation opportunities with their longtime residency in the City. Commenters expressed hope for the economic potential of outdoor recreation and referenced success stories in Northwest Arkansas as examples.

Second, commenters noted that the proposed multi-use trail has the potential to increase quality of life for City residents. Commenters mentioned encouraging physical wellbeing (particularly among youth), promoting a culture of health and connection to nature, providing opportunities for community building, and promoting cultural resources education in and surrounding the park.

Third, commenters noted that the proposed multi-use trail has the potential to promote the mutually symbiotic relationship between the park and the City. In other words, outdoor recreation opportunities provided by the City could attract visitors to the park, and vice versa.

A few commenters expressed concerns including: Americans with Disabilities Act compliance, access to the trailhead via bike lanes or otherwise, adequate and secure parking areas, proper signage, and protection of environmental and cultural resources. These concerns were considered by the HOSP Interdisciplinary Team during development of the action alternative and subsequent analysis.

4.3 CONSULTATION AND COORDINATION TO DATE WITH OTHER AGENCIES, OFFICES, AND THE TRIBES

This document will be used to initiate Section 7 consultation with the U.S. Fish and Wildlife Service and consultation with American Indian Tribes (listed in Section 4.4.2). The Arkansas Historic Preservation Office and Arkansas Natural Heritage Commission were consulted and concurred that the project will have no adverse effect on historic structures.

4.4 AGENCIES, ORGANIZATIONS, AND INDIVIDUALS RECEIVING A COPY OF THIS DOCUMENT

4.4.1 FEDERAL AGENCIES AND ORGANIZATIONS

U.S. Environmental Protection Agency
 U.S. Fish and Wildlife Service, Arkansas Field Office
 Arkansas Congressional Delegation

4.4.2 AMERICAN INDIAN TRIBES TRADITIONALLY ASSOCIATED WITH HOT SPRINGS NATIONAL PARK

Absentee Shawnee Tribe of Oklahoma
 Caddo Nation
 Osage Nation
 Quapaw Tribe of Oklahoma (O-Gah-Pah)

4.4.3 STATE AGENCIES AND ORGANIZATIONS

Arkansas Department of Health
 Arkansas Department of Transportation
 Arkansas Division of Commerce, Travel, and Tourism
 Arkansas Natural Resources Commission
 Arkansas Natural Heritage Commission
 Arkansas State Historic Preservation Officer
 Arkansas State Historical Society
 Office of the Governor
 State Legislators in the Project Area

4.4.4 OTHER AGENCIES, ORGANIZATIONS, AND ENTITIES

National Parks Conservation Association

Garland County Judge

Mayor and City Council of City of Hot Springs

Hot Springs Advertising and Promotion Commission

Park Avenue Property Owners Association

Requesting Members of the Public

CHAPTER 5: PREPARERS, PARTNERS, AND CONSULTANTS

5.1 HOT SPRINGS NATIONAL PARK

Laura A. Miller, Superintendent
Peter Swisher, Superintendent (former acting)
Josie Fernandez, Superintendent (former)
Mark Scott, Facilities Manager
Justin Cully, Chief Ranger
Shelley Todd, Natural Resource Program Manager, Interdisciplinary Team Lead
Tricia Horn, Management Analyst
Tom Hill, Museum Curator
Kelly Sokolosky, Hydrologic Technician
Kayla Lockmiller, Natural Resources Intern

5.2 NPS MIDWEST REGIONAL OFFICE

Scott Blackburn, Regional Environmental Coordinator
Tokey Boswell, Chief of Planning and Compliance

5.3 NPS MIDWEST ARCHEOLOGICAL CENTER

Ashley Barnett, Ph. D., Archeologist

5.4 CITY OF HOT SPRINGS

Bill Burrough, Deputy City Manager
Anthony Whittington, Parks and Trails Director
Denny McPhate, Public Works Director
Lance Spicer, Assistant City Manager/City Clerk
Ken Freeman, Trails Coordinator

5.5 VISIT HOT SPRINGS

Steve Arrison, CEO
Bill Solleder, Director of Marketing

5.6 CONSULTANT TEAM

5.6.1 SE GROUP

Larissa Read, Senior Associate, Project Manager
Travis Beck, Director, Environmental Services
Sam O'Keefe, Staff, Environmental Analysis and GIS
Ellie Wachtel, Staff, Environmental Analysis
Paula Samuelson, Publications Specialist

5.6.2 FLAT EARTH ARCHEOLOGY, LLC

Chris M. Branam, RPA, Owner/Principal Investigator

5.6.3 INTERNATIONAL MOUNTAIN BICYCLING ASSOCIATION

Mike Repyak, RLA ASLA, Trail Solutions Director of Planning and Design

CHAPTER 6: REFERENCES

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As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under US administration.

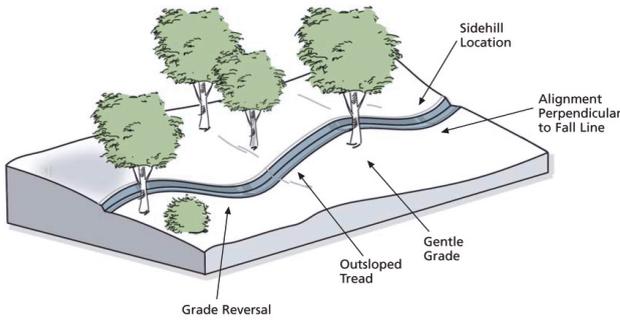
Document # 128 / 150058 February 2019

US Department of the Interior – National Park Service

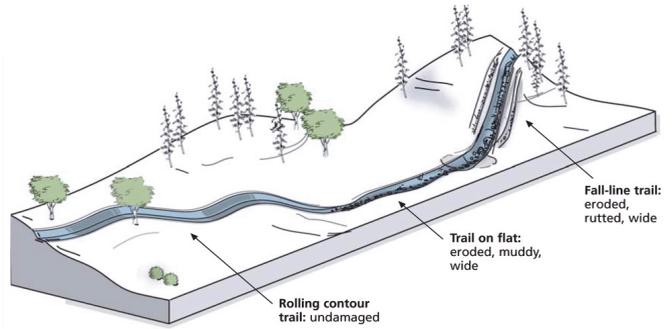
Appendix A: IMBA Trail Development Field Guide

Trail Development Field Guide

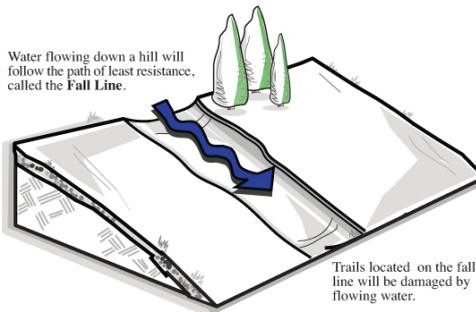
Rolling Contour Trail – The Ideal



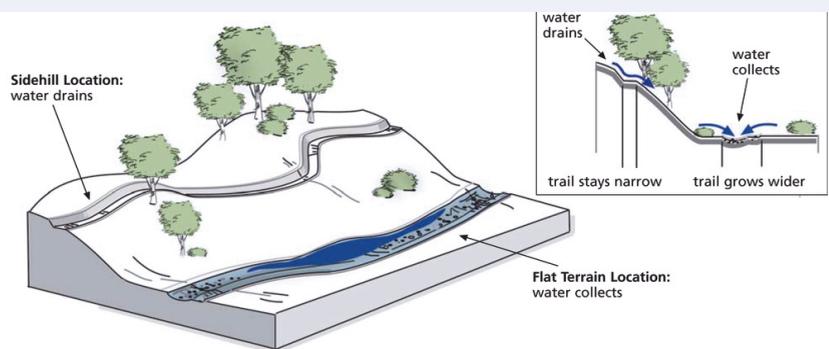
The Effect of Proper Trail Design



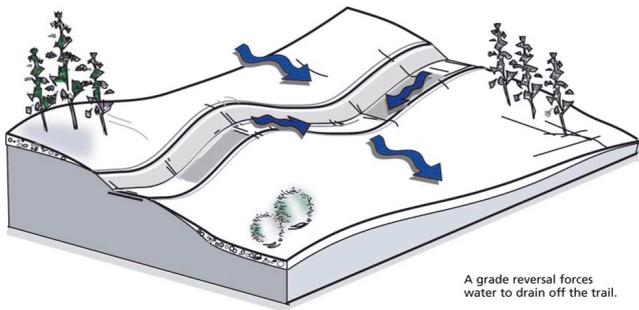
Fall Line Trail Defined



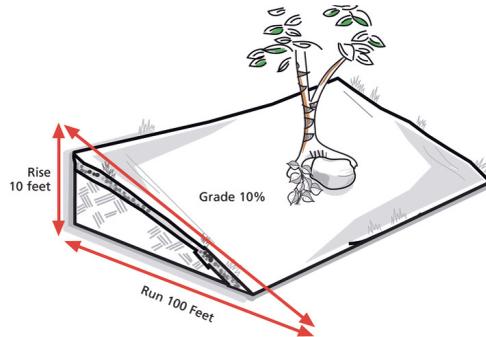
Trail Location: Sidehill Trails Are Best



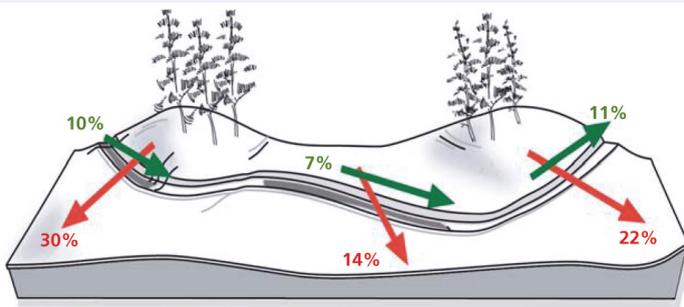
Grade Reversals



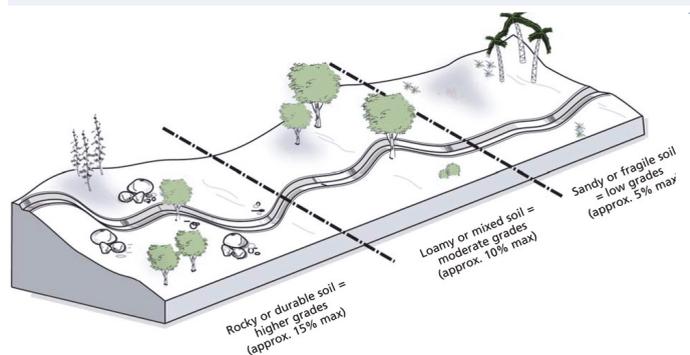
Determining Grade (Rise / Run x 100 = %)



The Half Rule – Trail Grade < 1/2 Sideslope Grade

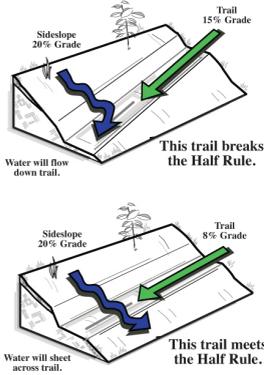


Maximum Sustainable Grade, 15% Dependent

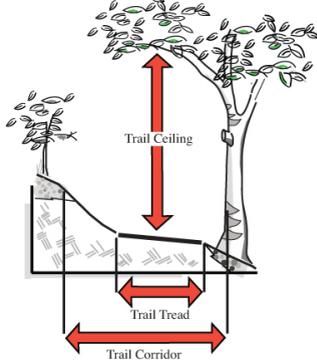


Trail Development Field Guide

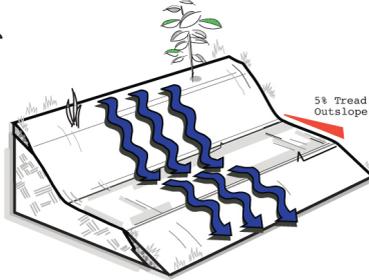
Half Rule



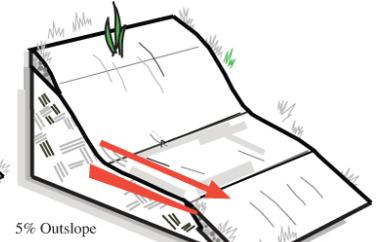
Trail Corridor



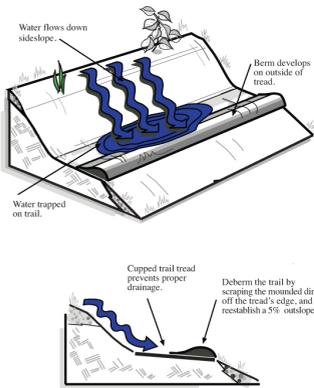
Sheet Flow



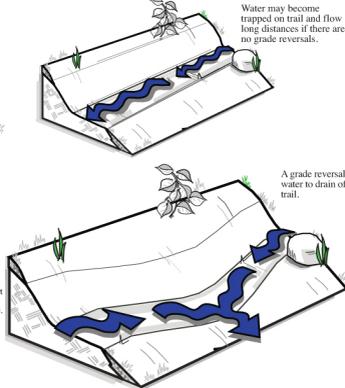
Outslope



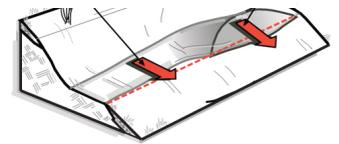
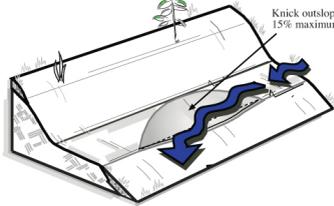
Berm



Grade Reversal

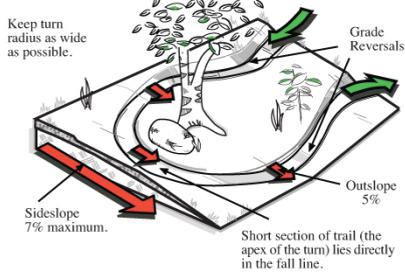


Knick

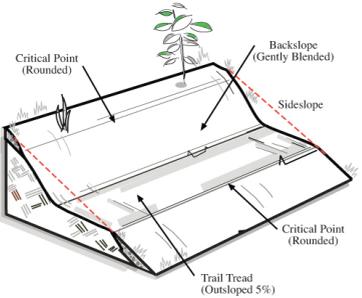
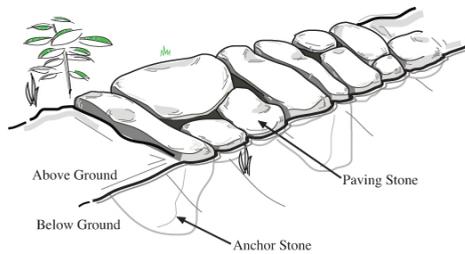


Knick outslope 15% maximum

Climbing Turn

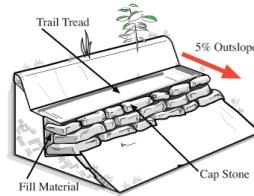
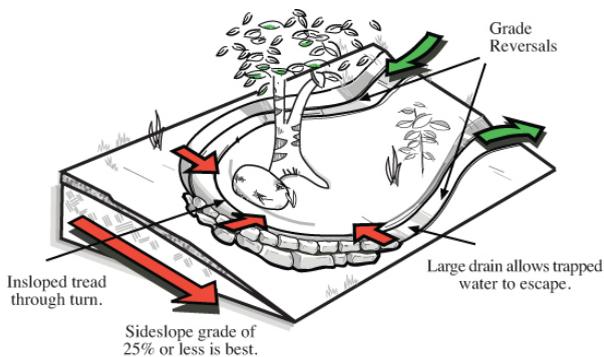


Flagstone Paving

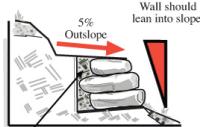


Full Bench Trail

Raised Turn



Rock Crib/Retaining Wall



Use only rocks and mineral soil for back fill. Don't use organic material.

Trail Closure and Reclamation

