

National Park Service
U.S. Department of the Interior



Antietam National Battlefield
Sharpsburg, MD



ANTIETAM NATIONAL BATTLEFIELD LANDSCAPE MANAGEMENT PLAN
ENVIRONMENTAL ASSESSMENT
JULY 2022

Antietam National Battlefield Landscape Management Plan Environmental Assessment

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PURPOSE AND NEED

INTRODUCTION

The National Park Service (NPS) is developing a Landscape Management Plan and environmental assessment (Plan) for Antietam National Battlefield in Sharpsburg, Maryland to evaluate the impacts from changes in the management of the landscape to maintain and enhance the Battlefield's historic character. The purpose of the Antietam National Battlefield (the Battlefield) is to preserve, protect, restore, and interpret for the benefit of the public the resources associated with the Battle of Antietam and its legacy.

This Plan would amend the scene restoration and resource management portions of the Antietam National Battlefield General Management Plan (GMP) addressing lands acquired since 1992 not considered in the GMP and evolving management decisions regarding the management of the historic battlefield landscape. This follows the NPS "Planning Portfolio" construct, consisting of a compilation of individual plans, studies, and inventories, which together guide park decision making. The planning portfolio enables the use of targeted planning products (such as this one) to meet a broad range of park planning needs, a change from the previous NPS focus on stand-alone general management plans. The general management plan remains a critical piece of the planning framework, however, and will be revised in a timely manner through the park's planning portfolio.

This Environmental Assessment (EA) describes two alternatives for the proposed management of the Battlefield, an action alternative and the no-action alternative, and analyzes the environmental consequences of implementing the alternatives. The action alternative is the Landscape Management Plan. The EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended; regulations of the Council on Environmental Quality (40 CFR 1500-1508); NPS Director's Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-Making; and the NPS NEPA Handbook (NPS 2015). In conjunction with this EA, the project is undergoing a review of potential effects on historic resources in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. This document is being used for compliance with NEPA. A separate Assessment of Effects has been prepared for compliance with the NHPA.

Purpose

The purpose of the Landscape Management Plan is to develop comprehensive, sustainable land use strategies that will preserve significant landscape elements and integrate natural and cultural resource values. The Plan will define the framework for the treatment of the Battlefield and commemorative landscape and describe specific guidelines and tasks aimed to maintain and enhance its historic character.

Need

This Plan is needed because:

- The 1992 GMP provides inadequate and outdated Scene Restoration and Resource Management guidance
- The Battlefield has more than doubled in size since the 1992 GMP
- Existing park guidance does not address appropriate preservation treatment for the entire battlefield cultural landscape as it is currently defined
- The landscape has been managed in a piecemeal manner
- Invasive species and pests present a growing challenge to Battlefield-wide stewardship
- Erosion occurs along creeks and trails, diminishing Battlefield resources

- The Battlefield experiences loss or diminishment of witness trees
- The Battlefield is evaluating a long-term lease program for farm operation and improved watershed stewardship
- The landscape lacks sufficient resiliency to address climate change impacts

BACKGROUND AND PROJECT AREA

Antietam National Battlefield was established in 1890 to commemorate the bloodiest single-day battle in American history. The purpose of Antietam National Battlefield is to preserve, protect, restore, and interpret for the benefit of the public the resources associated with the Battle of Antietam and its legacy.

Antietam is considered one of the best-preserved Civil War areas in the national park system. The farms and farmlands in and near the Battlefield appear much as they did on the eve of the battle in 1862. The Battlefield is located in a rural area of south Washington County, Maryland (Figure 1); agriculture is the predominant land use. Of the 3,230 acres within the Battlefield boundary, 1,991 are owned in fee by the federal government and managed by the NPS to maintain the historic setting and provide for visitor use. Another 751 acres are in partial federal ownership (less than fee)—these include privately owned land with scenic easements held by the federal government that restrict the levels and types of allowable development. The remaining 466 acres are privately owned. Most privately owned lands are farmed by local residents. Antietam attracts approximately 350,000 visitors per year. The 11-stop automobile tour takes visitors through areas of historical interest, tracing troop movements, interpreting battle tactics and military strategy, and relating human interest stories. The project area includes historic farmsteads, agricultural fields, forests, trails, a visitor center, two cemeteries, commemorative monuments, and historic structures as shown in Figure 2.

The entire Battlefield, including the private properties within the boundary, is listed in the National Register of Historic Places as a historic district. Many structures and outbuildings remain from the historic period, including the Miller, Mumma, Piper, Pry, Otto, and Sherrick farmsteads. Miller's Cornfield, Sunken Road (Bloody Lane), and Burnside's Bridge include some of the most important areas. Several structures and features added to the Battlefield since the war have become historic in their own right. These include Antietam National Cemetery, a burial site for 4,776 Federal soldiers; the road system established by the War Department in the 1890s; almost 100 monuments that commemorate the soldiers who fought at Antietam; numerous tablets placed by the War Department; and the Observation Tower overlooking Sunken Road (Bloody Lane). There are a few modern structures on the Battlefield, including the visitor center and associated features, which have been found eligible for the National Register due to their significance as Mission 66 historic resources and also contribute to the commemorative landscape at Antietam.

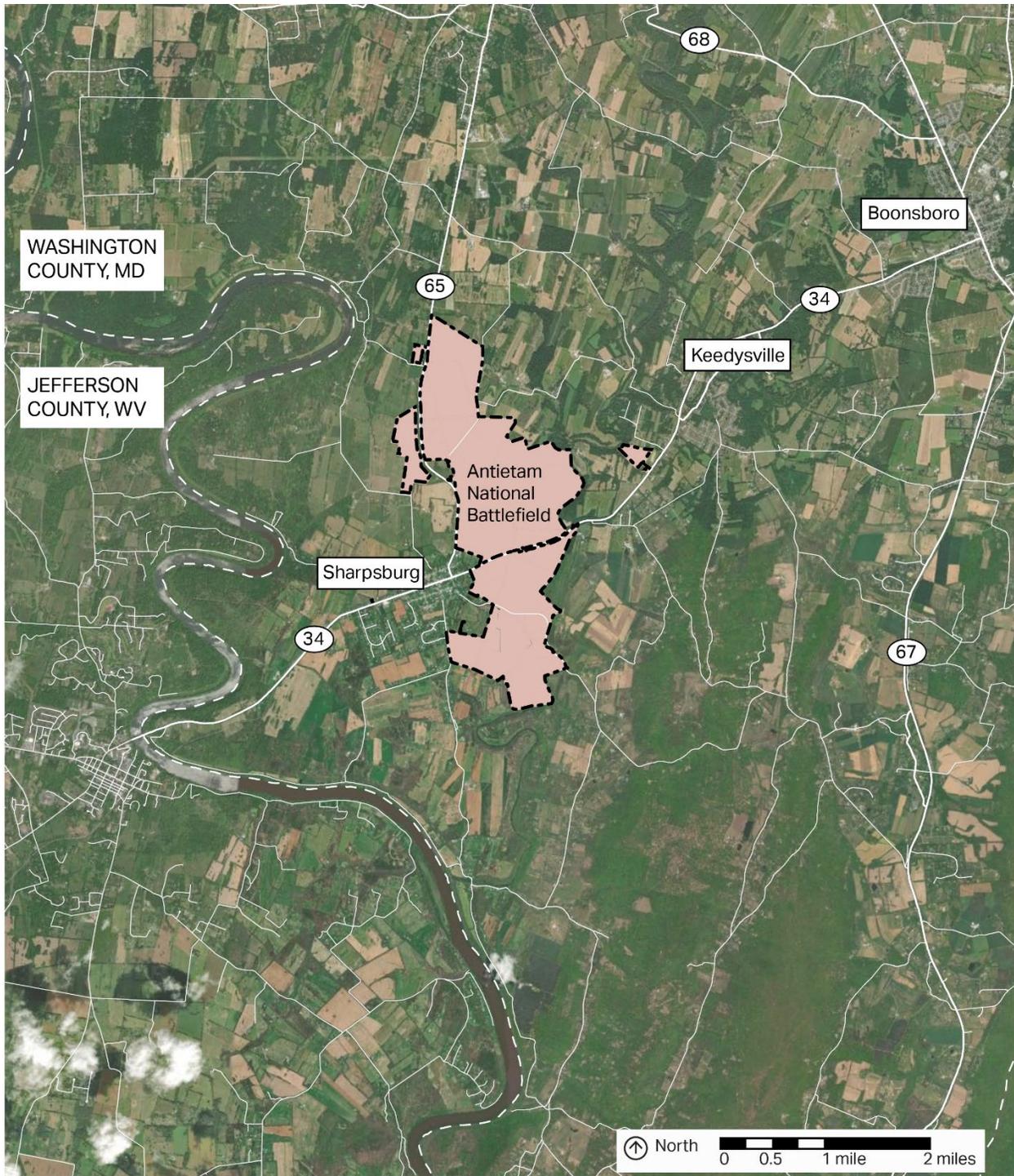


Figure 1: Regional Context

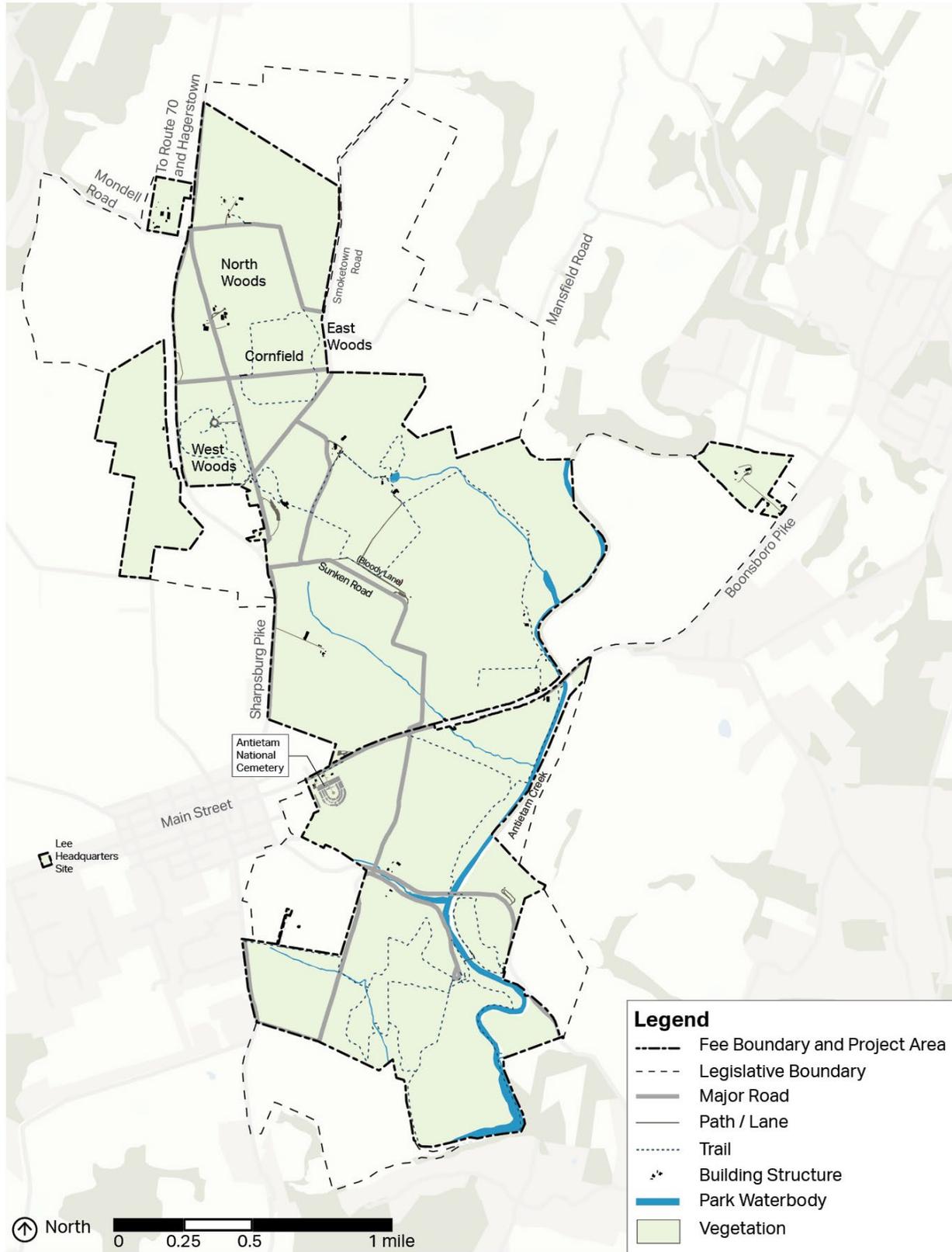


Figure 2: Project Area

ISSUES AND IMPACT TOPICS RETAINED FOR DETAILED ANALYSIS

The NPS, participating agencies and stakeholders, and the public identified issues and concerns for detailed analysis during the internal and public scoping processes. These issues and concerns are included in the impact topics that are discussed in the “Affected Environment and Environmental Consequences” section of this EA. The proposed project includes reforesting approximately 140 acres; enhancing riparian buffers and mitigating erosion; establishing approximately 287 acres of additional native grasslands and meadows; maintaining agricultural areas; re-planting and maintaining orchards; maintaining mown lawn; improving the Mumma Farmstead and location-specific designed landscapes; re-establishing important viewsheds; and maintaining fencing and other landscape elements.

Potential for the project to impact cultural landscapes. Historic properties are documented in the Cultural Landscape Report (CLR) for the physical landscape associated with the Antietam National Battlefield. These cultural resources are analyzed in detail in the Cultural Landscapes section of this EA.

Potential for the project to impact archeological resources. The entire Battlefield is listed as an archeological site due to the September 17, 1862 battle. The park also contains 34 individually documented archeological sites, of which 33 are located within the fee boundary. Although only approximately 48 percent of the park has been surveyed, additional archeological resources are likely to exist in the park. As a result, archeological resources are analyzed in detail in the Archeological Resources section of this EA.

Potential for the project to impact water resources. The Battlefield is part of the Antietam Creek Watershed, a tributary of the Potomac River basin. The proposed changes would affect filtration, erosion, and agricultural uses (and their associated inputs) within the watershed. As a result, the water resources are analyzed in detail in the Water Resources section of this EA.

Potential for the project to impact vegetation. The Battlefield contains forests, native grasslands and meadows, agricultural lands, and other vegetation. The proposed action would change how some of these areas are managed. As a result, the proposed project’s potential impacts on vegetation are analyzed in detail in the Vegetation section of this EA.

Potential for the project to impact wildlife and wildlife habitat. The Battlefield offers a variety of habitat for wildlife, including forests and native grasslands and meadows. The proposed action would alter the management of these habitats, including the conversion from agricultural uses to forests, grasslands, or meadows. As a result, the proposed project’s potential impacts on wildlife and wildlife habitat are analyzed in detail in the Wildlife and Wildlife habitat section of this EA.

Potential for the project to impact visitor use and experience. The proposed project could enhance visitor use, understanding and experience through changes to important views, improvements to trails, new universally accessible trails, and the preservation and maintenance of landscape elements. The proposed project’s potential impacts on visitor access, experience, and opportunities are analyzed in detail in the Visitor Use and Experience section of this EA.

ISSUES AND IMPACT TOPICS DISMISSED FROM FURTHER ANALYSIS

Some issues and concerns identified during scoping were considered by the NPS but were ultimately dismissed from detailed analysis because they were determined not central to the proposal or not of critical importance. This section will provide brief descriptions of the issues and concerns determined to not warrant further consideration, as well as a summary justification for the dismissal of each issue.

Potential for the project to impact historic buildings and structures. Historic buildings and structures are documented in the NHRP nomination and additional documentation for the Antietam National Battlefield historic district, which encompasses the legislative boundary of the Battlefield (NPS 1982, 2009, 2018b). Historic buildings and structures are located across the project area and date from the periods of significance, which include September 16-18, 1862 (Battle of Antietam), 1865-1942 (commemoration period), and 1960-1967 (Mission 66 era). The proposed project would continue to maintain historic features such as roadways, farm lanes, trails, routes, historic stone walls, monuments, and other structures. Although the proposed project could result in noticeable changes to these historic structures, these maintenance activities would help preserve and maintain these features. The proposed project would not result in physical changes to historic buildings, but could result in noticeable changes to the setting of historic buildings. Maintenance activities would be undertaken in a manner that is consistent with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*. As a result, historic buildings and structures were dismissed from further analysis in this EA.

Potential for the project to impact floodplains. Approximately 169 acres of the project area is located within the 100-year floodplain. The proposed project would establish forests, grasslands, and meadows in floodplains and stabilize streambanks subject to erosion. The NPS would adhere to procedures set forth in Reference Manual #77-2: Floodplain Management to eliminate or minimize impacts on the 100-year floodplain.

The NPS also would obtain necessary federal and state permits for proposed actions occurring in the 100-year floodplain and adhere to applicable requirements set forth in the permits to avoid, mitigate, or otherwise minimize floodplain impacts. Adherence to the requirements of Reference Manual #77-2 and applicable federal and state permits would ensure that proposed projects would have minimal potential to affect the capacity of the 100-year floodplain to store or convey floodwaters, or result in the displacement of floodwaters further downstream. As a result, this topic was dismissed from further analysis in this EA.

Potential for the project to impact soils. The proposed project would affect an estimated 142 acres of soils within the 1,991-acre project area as a result of proposed reforestation and re-establishment of orchards. To support reforestation and orchard re-establishment, approximately 142 acres of trees would be planted to a depth of approximately eight inches to three feet. Streambank restoration, which would occur along the Snavely Ford Trail and other areas as needed, would stabilize exposed soils that are susceptible to erosion.

The proposed project would also place overhead utility lines along Dunker Church Road (historic Hagerstown Pike) underground or relocated them along MD Route 65. This would involve ground disturbing activities such as digging and the removal of soils.

During implementation of this Plan, the NPS and/or its contractors would adhere to applicable Best Management Practices (BMPs) to minimize the erosion of exposed soils and the corresponding pollution and sedimentation of downstream watercourses. Proposed project actions involving 5,000 square feet or more of earth disturbance would require a Maryland Department of the Environment General Permit, which would require the preparation of an erosion/sediment control plan. Adherence to the requirements of the permit and erosion/sediment control and stormwater management plans would minimize construction-related impacts on soils. The phasing of the proposed project over a period of 10 to 15 years would further minimize impacts on soils resulting from activities. As a result, this topic was dismissed from further analysis in this EA.

Potential for the project to impact threatened and endangered species. In accordance with Section 7 of the Endangered Species Act, the NPS consulted with the U.S. Fish and Wildlife Service (USFWS) to determine the potential for federally-listed protected species to be present at the project area. This

consultation indicated the potential for the federally threatened northern long-eared bat (*Myotis septentrionalis*) and the federally endangered Indiana bat (*Myotis sodalis*) to be present at the Battlefield. Maryland has also designated the northern long-eared bat and the Indiana bat as a state-listed endangered species. The NPS has acoustically detected, through studies by the U.S. Geological Survey (USGS), Virginia Cooperative Fish and Wildlife Research Unit, and Virginia Polytechnic Institute and State University, the presence of the Indiana bat at the Battlefield (Ford and Deeley 2017).

Prior to and during the implementation period of the proposed project, the NPS will complete Section 7 consultation with the USFWS and Maryland Department of Natural Resources Wildlife and Heritage Service (DNR) to identify activities included in the proposed action that would have the potential to affect federally and state listed threatened and endangered species.

To avoid adverse impacts on the northern long-eared bat and Indiana bat, the NPS would incorporate new survey information and would not remove trees between June 1 and July 31 (i.e., the pup season). For the northern long-eared bat, the NPS would adhere to a time-of-year restriction between April 1 and October 31 of any year for the removal of potential or known roost trees, the removal of known occupied maternity roost trees or trees within 150 feet of known occupied maternity roost trees or within 0.25 mile of a hibernaculum, without reinitiating Section 7 consultation with the USFWS. Currently there are no known northern long-eared bat hibernacula within the park. If specimens of the Indiana bat are documented within the Battlefield prior to implementing activities associated with the proposed project, the NPS would develop and implement conservation measures in consultation with the USFWS to avoid adverse impacts on the Indiana bat.

Through ongoing consultation with the USFWS (and DNR as needed), adherence to applicable minimization or conservation measures identified during the consultation process, and performing tree removal only outside of the active period from November 1 to March 31, it is anticipated that the proposed project would have no adverse impacts on federally or state-listed threatened and endangered species occurring at the Battlefield. As a result, threatened and endangered species and wildlife were dismissed from further analysis in this EA.

ALTERNATIVES

This EA analyzes the potential environmental consequences of two alternatives, an action alternative and a no action alternative. The elements of these alternatives are described in detail in this chapter. Impacts associated with the actions proposed under each alternative are outlined in the “Affected Environment and Environmental Consequences” chapter of this EA. In addition, several alternatives were considered but dismissed from further consideration. These are described in this chapter under “Alternatives Considered but Dismissed.”

ALTERNATIVE A: NO ACTION

Alternative A proposes to retain the Battlefield’s existing landscape (Figure 3). Alternative A would retain the Battlefield’s existing vegetation patterns, which include woodland areas, native grasslands and meadows, riparian buffers, agricultural areas, and mown lawns under their current maintenance regimens.

Areas under agricultural use would continue to implement Nutrient Management plans and farmstead-specific Soil and Water Conservation plans. These outline BMPs, such as crop rotation, integrated pest management, conservation tillage, and cover crops.

The following landscape elements would continue to be managed under their current maintenance regimens:

- The eight-acre orchard at the Piper Farmstead.
- The non-accessible circulation routes, and vegetation between the Mumma Farm and Roulette Farm at the Mumma Farmstead.
- Vegetation and non-accessible circulation routes at Antietam National Cemetery.
- Vegetation at Philadelphia Brigade Park.
- Vegetation at the Maryland Monument landscape.
- Viewsheds. Viewsheds currently obstructed by successional or periodically overgrown vegetation, overhead utility lines, and modern structures would continue to be obstructed.
- The approximately 93,100 linear feet of fencing, which includes approximately 40,400 linear feet of replica historic fencing and approximately 52,700 linear feet of agricultural fencing.

Other landscape elements would continue to be maintained through the following methods:

- Maintain roadbeds and edges with grass mixes requiring minimal mowing and monitor roadway for erosion and disturbance by burrowing animals.
- Maintain monuments through routine monitoring that ensures they are routinely cleaned and repaired, level, and that the foundation based of each monument is protected from erosion and burrowing animals.
- Maintain farm lanes depending on their material, such as gravel surfaced, paved asphalt with exposed aggregate, or fully asphalt paved.
- Maintain trails and routes, consisting of bare ground, mown grass, wood chips, or paved surfaces for erosion or depressions, material damage, or inconsistent material distribution.
- Monitor historic stone walls for potential needs of repairing, resetting, or replacing in-kind. The Battlefield would continue to preserve stone walls by ensuring a clear and stabilized foundation, walls

are free of debris and overgrown vegetation, and ensuring walls remain consistently aligned in their historic pattern and arrangement.

- Protect Potential Witness Trees according to the Burnside Sycamore assessment and operation procedure while the NPS develops a tree protection plan. Protection measures would include minimizing soil compaction around the base of trees, erosion, and incompatible adjacent activities around the tree drip lines, as well as consistent monitoring for tree disease or damage.
- Maintain historic structures by maintaining/preserving all aspects of integrity for historic buildings and structures, maintaining structural foundation, improving interpretation, and maintaining unobstructed visual access.
- Maintain historic field edges and fencerows through clearance of non-native vegetation, maintenance of desirable trees, and development a special seed mix/plant list to maintain the historic spatial pattern of the landscape.

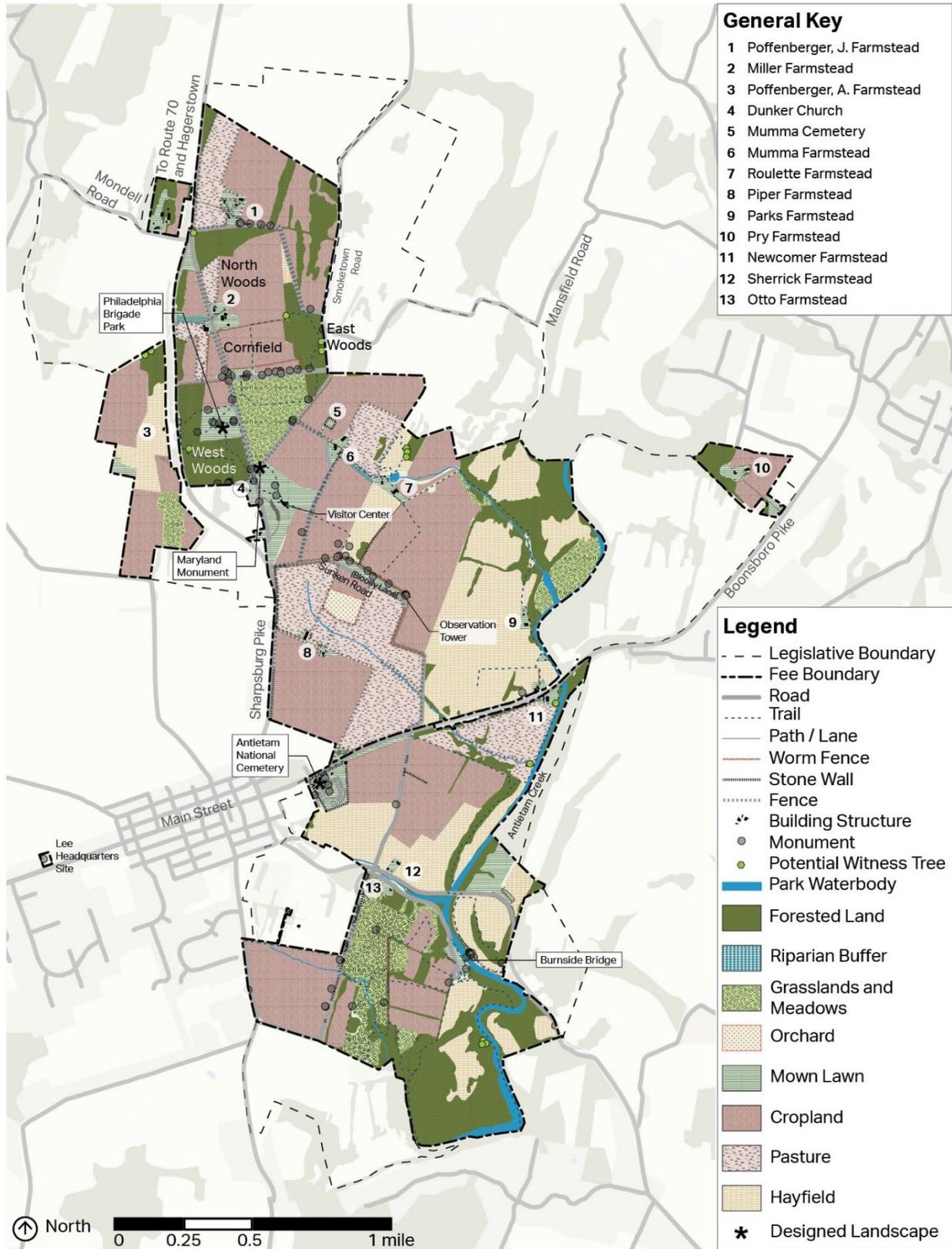


Figure 3: Map of Alternative A: No Action

ALTERNATIVE B: LANDSCAPE MANAGEMENT PLAN

Alternative B would improve the cultural landscape integrity and ecological function of Antietam National Battlefield's diverse landscape mosaic. Alternative B would rehabilitate forest cover in areas with historical woodlots or where contiguous cover can improve ecological function; improve riparian buffers adjacent to springs, creeks, and streams; convert some open areas to grasslands or meadows to provide higher species richness in the landscape; rehabilitate views through removing obstructive vegetation; and, add orchard planting when feasible to enhance the cultural landscape character and to support public education and interpretation (Figure 4).

Forest Rehabilitation

Alternative B would reforest approximately 140 acres of woodland areas in locations where substantial gaps in forest cover exist or where historic woodlots, as documented in the 2021 Antietam National Battlefield CLR, have been diminished. Alternative B would also rehabilitate areas where transition from agricultural, grassland, or meadow areas to forest cover could improve ecological function. Planted tree species would be from the Northeastern Interior Dry-Mesic Oak Forest community and based on geographical location, such as the upland or floodplain community. Upland tree planting would include oaks, maples, hickories, and walnuts while floodplain areas would include a matrix of oaks, sycamore, silver maples, tulip poplars, and beeches.

Water Quality Improvement

Alternative B would improve water quality through enhanced riparian buffers and erosion mitigation. Riparian buffers are a diverse mix of trees and shrubs that help filter sediment and nutrients, maintain desirable water temperature, and provide wildlife habitat. Riparian buffers would be maintained or enhanced adjacent to creeks, streams, and intermittent drainages as needed to help improve water quality measures. In areas that include historic vistas, the improvements would use shrubs or grasses instead of trees, if appropriate.

Native Grassland and Meadow Establishment

Alternative B would establish approximately 287 acres of additional native grasslands and meadows through conversion of some hayfields and crop fields. These additional grasslands and meadows would increase the overall value to birds, small mammals, and insects by creating larger, contiguous grassland areas. These fields would be maintained through a prescribed burn program and monitoring, and ongoing control of invasive vegetation. Grasslands and meadows would help maintain historic viewsheds for the public's understanding of the battle.

Agriculture

Alternative B would continue to maintain approximately 824 acres of agricultural areas, which is the predominant land use in the Battlefield, through special use permits or historic leasing. Agricultural fields where key battle-related actions occurred would remain in agricultural use. These areas would continue to implement Nutrient Management plans and farmstead-specific Soil and Water Conservation plans, which outline best management practices such as crop rotation, integrated pest management, conservation tillage, and cover crops. Farmsteads with hayfields would continue to follow soil and water conservation plan best management practices for mowing frequency guidelines and soil and water management. Farmsteads with pastures would continue to follow soil and water conservation plan best management practices for guidelines on stock numbers per acres, mowing frequency of invasive vegetation, conservation of soil and water, riparian management, and rotational grazing.

Orchards

Alternative B would reestablish approximately two acres of the historic Mumma Farm orchard and maintain the Piper Farmstead's existing eight-acre orchard. The restoration of the historic Mumma farmstead-related landscape features, such as the orchard, would enhance the public's understanding of historic farming. Alternatives such as planting dwarf or nonfruiting varieties of trees would be considered for reducing the maintenance needs of the orchard. The Battlefield staff and the orchard cooperator would continue to manage the orchards through best management practices, such as deer population control, organic operation with low pesticide use, native bee population management, and cyclical mowing.

Mown Lawn

Alternative B would maintain mown lawns in select areas, such as tour road buffers, edges between road and agricultural fields, areas around the visitor center, Dunker Church, Mumma Cemetery, the Philadelphia Brigade Park, Sunken Road (Bloody Lane) and the Observation Tower, the Lee Headquarters Site, and adjacent to the Burnside Bridge Overlook, as well as areas around the farmsteads, between farm buildings and structures and along internal fence lines

Mumma Farmstead

The NPS has identified the Mumma Farmstead as a place for a focused effort on public education programming. Alternative B would maintain the historic landscape by providing universally accessible routes to the farmhouse and the Mumma barn with a ground material of low visual impact; restoring missing farmstead vegetation such as kitchen gardens; re-establishing the orchard that was located northeast of the large barn; and rehabilitating the stone wall between the Mumma Farm and Roulette Farm.

Designed Landscapes

In addition to its agricultural and natural areas, the Battlefield also contains several location-specific designed landscapes. Alternative B would include the following enhancements:

- Rehabilitate Philadelphia Brigade Park by re-introducing original tree plantings and maintaining historic formal spatial patterns based on recommendations in a future Philadelphia Brigade Park CLR.
- Rehabilitate the Maryland Monument landscape by replacing tree gaps with sugar maples and maintaining the historical tree spacing pattern to define the monument setting.
- Rehabilitate the Antietam National Cemetery landscape through implementation of the 2014 Antietam National Cemetery CLR. Overall, the cemetery landscape would be rehabilitated through new plantings, selected vegetation removal, the maintenance and establishment of new lawn areas, headstone preservation, and accessibility improvements to the cemetery lodge and within the cemetery grounds. Additional details about the proposed rehabilitation actions are included in Appendix C.

Viewsheds

Alternative B would re-establish important visual connections through clearing of obstructive successional vegetation. Principal vantage points include the Visitor Center, Miller Meadow, Sunken Road (Bloody Lane), Observation Tower, and Burnside Bridge. Views from the visitor center towards Sunken Road (Bloody Lane) and views north and west from the historic road trace would be rehabilitated through woody vegetation clearance. Views from the visitor center to the north would be rehabilitated by placing overhead utility lines underground or relocating these lines along MD Route 65.

Replica Historic Fencing

The Battlefield currently has approximately 40,400 linear feet of replica historic fencing, defined as fencing the NPS reconstructs based on historic documentation such as maps and photographs; reconstructed fencing re-creates the appearance of the non-surviving historic property in materials, design, color and texture, per *The Secretary of the Interior's Standards for the Treatment of Historic Properties*. Under Alternative B, the park staff would focus maintenance efforts on approximately 15,100 linear feet of high priority replica historic fencing that supports interpretive operations (Figure 5). High priority replica historic fencing, consisting of wooden worm and rail fencing, is located at the Cornfield, along Dunker Church Road (historic Hagerstown Pike) and Sunken Road (Bloody Lane), and at the Burnside Bridge. Park staff may also maintain the remaining approximately 25,200 linear feet of lower priority replica historic fencing, which primarily serves to delineate spatial relationships of the land.

Park staff would continue to review fencing needs based on interpretive and historic importance, maintenance requirements and existing conditions. Maintaining replica historic fencing would help visitors better understand the events of the battle and maintain the design integrity of the historic landscape. By dividing replica historic fencing into high and low priority, the park would strive to maintain all high priority replica historic fencing and, depending upon funding availability and operational requirements, may maintain lower priority replica historic fencing.

Maintenance of Other Landscape Elements

Alternative B would continue to maintain other landscape elements as described for Alternative A on page 8.

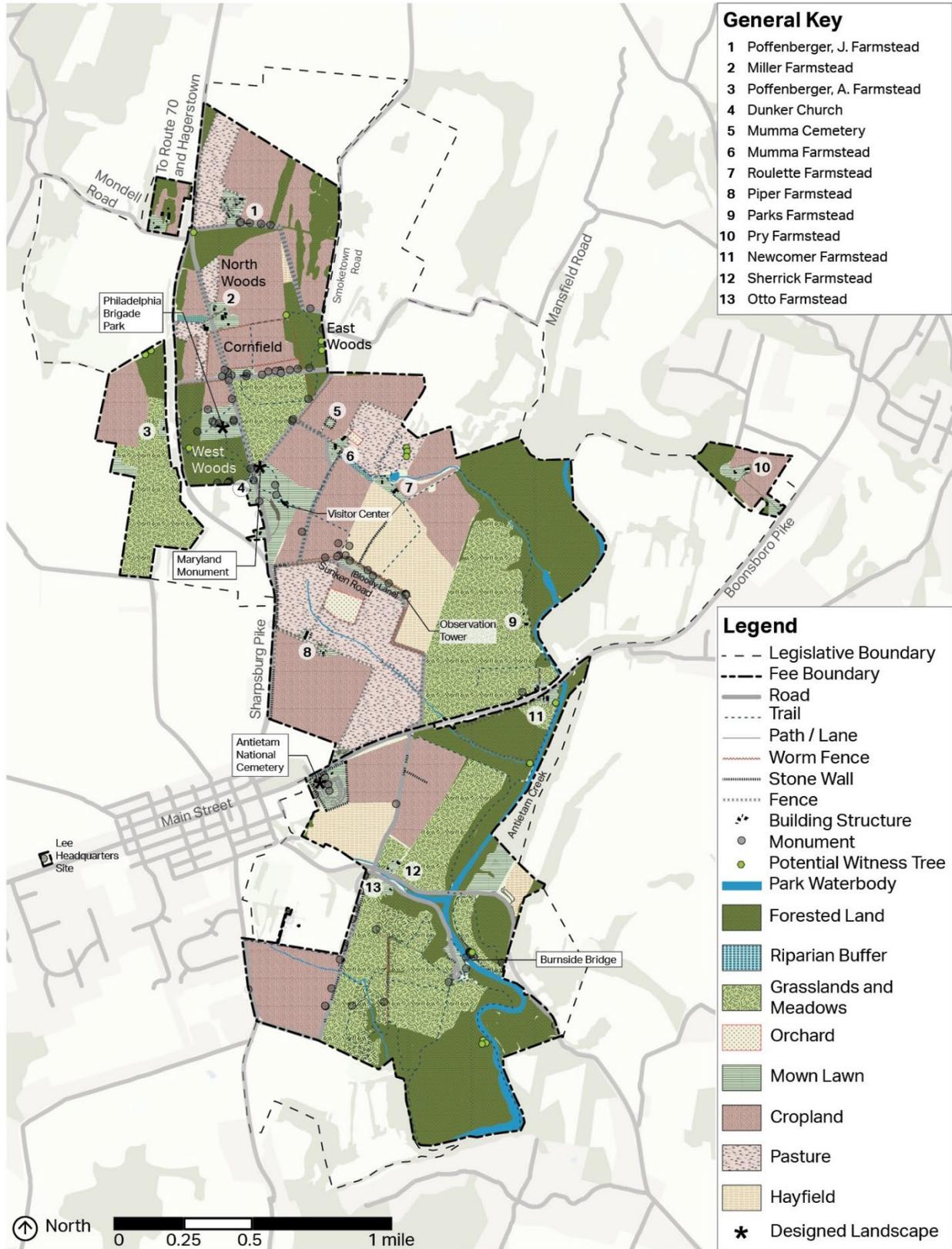


Figure 4: Map of Alternative B: Action Alternative

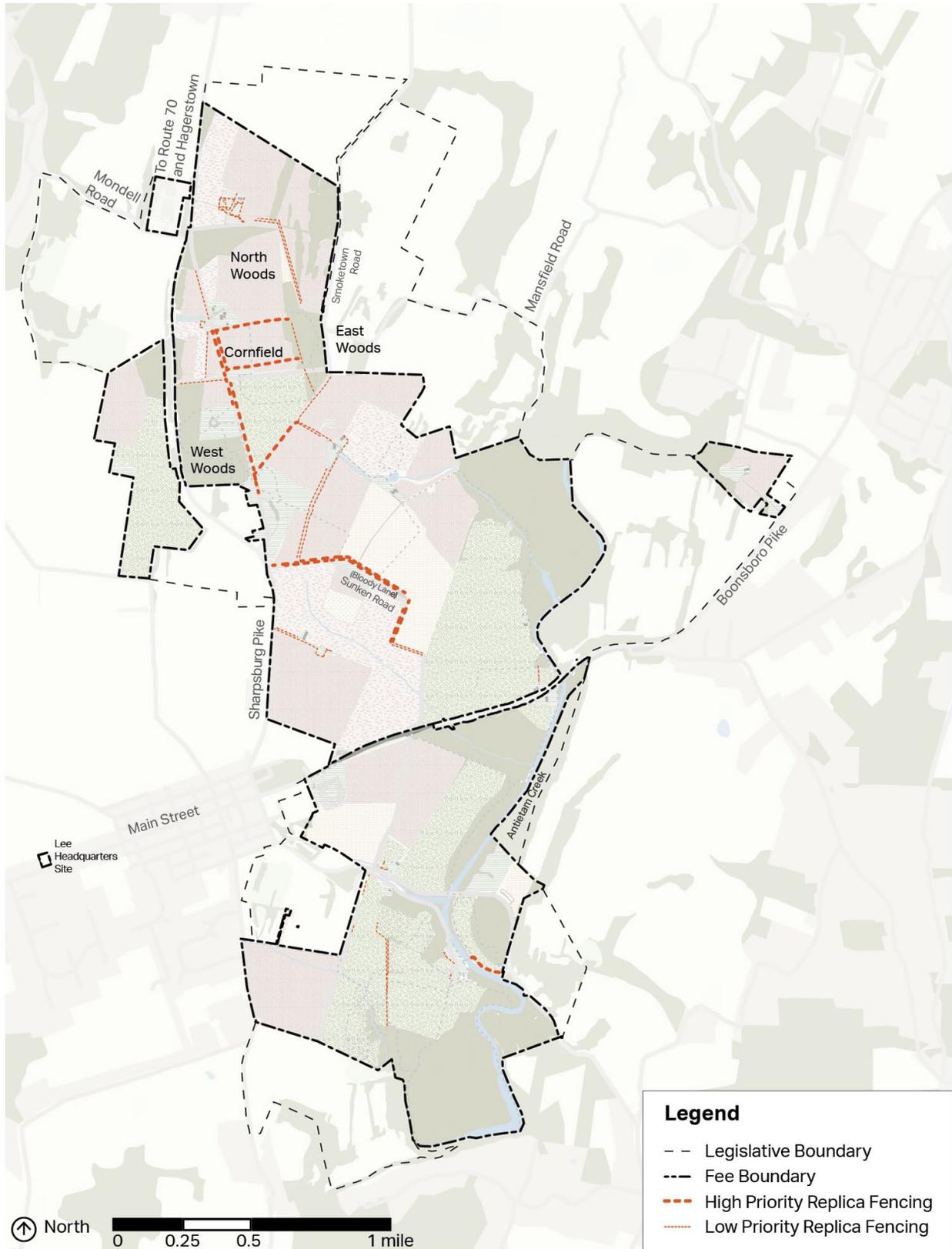


Figure 5: Map of Alternative B: Action Alternative – Priority Fencing

MITIGATION MEASURES OF THE PROPOSED ACTION

Mitigation measures would be implemented under the proposed action, whenever feasible, for resource protection and to minimize disruption to visitors. The exact mitigation measures would depend upon the final design and plan approvals by relevant agencies. The following mitigation measures are proposed to reduce impacts as a result of the proposed action. Mitigation measures may be mandatory, such as those measures that are required by law, special conditions of permits or authorizations, or by NPS policy. Some measures are voluntary, including those measures that are not required but would be implemented into the final design as a best practice to reduce resource impacts or visitor disruption.

Cultural Landscapes

In compliance with Section 106 of the NHPA of 1966, as amended, the NPS would avoid or minimize impacts on cultural landscapes by undertaking maintenance, monitoring, and rehabilitation activities, as well as planning and design of new universally accessible routes at the Mumma Farmstead and the Antietam National Cemetery in a manner that is consistent with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*.

Archeological Resources

The following mitigation measures would be implemented in compliance with Section 106 of the NHPA of 1966, as amended. The NPS would minimize ground-disturbing activities to the extent practicable. The NPS would also avoid known archeological resources during landscape management and maintenance to the extent practicable. The NPS would conduct Phase IB archeological survey in those areas of the Battlefield that have not been subjected to the full suite of intensive archeological survey methods to identify archeological resources that could be impacted by landscape management and maintenance activities that have the potential for ground disturbance, could result in a loss of archeological integrity, and could result in adverse impacts on archeological resources. These surveys would take place where ground disturbance is proposed after exact project footprints are identified and prior to site work. Any such archeological studies and investigations would be carried out and evaluated for effect before construction and in consultation with the Maryland Historic Trust (MHT) [Maryland's State Historic Preservation Office (SHPO)] and Federally Recognized Tribes ("tribes"). If NRHP-eligible or potentially eligible archeological resources are found to be present, the NPS would define the appropriate avoidance, minimization, and mitigation measures to be taken in consultation with the SHPO and tribes.

NPS protocols would be followed for the unanticipated discovery of human remains as a part of any project. If any Native American burials, cemeteries, or funerary objects are encountered, the NPS would contact federally recognized Tribes with affiliation in Maryland, in accordance with the Native American Graves Repatriation Act (NAGPRA).

The NPS would establish Unanticipated Discoveries protocols for each landscape management or maintenance activity as part of the Section 106 documentation process prior to implementation of work. The NPS would follow the established Unanticipated Discoveries protocols in the event unanticipated archeological resources are encountered anywhere in the park as a result of ground disturbances.

Water Resources

The NPS would continue to develop Soil Conservation and Water Quality Plans (SCWQPs) and nutrient management plans for agricultural uses within the Battlefield. The NPS and/or its contractors would adhere to applicable BMPs to minimize the erosion of exposed soils and the corresponding pollution and sedimentation of downstream watercourses.

The NPS would adhere to procedures set forth in Reference Manual #77-1: Wetland Protection in order to comply with NPS Director's Order (DO) #77-1: Wetland Protection and to avoid, minimize, and compensate for adverse impacts on wetlands.

Vegetation

Obstructive vegetation removal would disturb areas and potentially offer the opportunity for invasive species to establish themselves. The disturbed areas would be re-vegetated or otherwise stabilized following the completion of implementation, which would reduce the potential for invasive species. Additionally, invasive species would be treated in accordance with an Invasive Plant Management Plan.

ALTERNATIVES CONSIDERED BUT DISMISSED

The NPS considered multiple alternative options during scoping for the Landscape Management Plan that were ultimately dismissed from further consideration. The NPS initially considered the following elements for inclusion in the Plan:

- Access improvements to Antietam Creek for recreational use
- Parking and circulation improvements for access to Antietam National Cemetery as identified in the 2014 Antietam National Battlefield CLR.
- Additional trails for areas not addressed in the 2018 Antietam National Battlefield Visitor Access and Circulation Plan

The NPS determined that each of these items was related to use of the battlefield, rather than landscape management, and therefore beyond the scope of the project. As a result, these alternative options for the Plan were dismissed from further consideration.

RATIONALE FOR THE PREFERRED ALTERNATIVE

The preferred alternative is the alternative that “would best accomplish the purpose and need of the proposed action while fulfilling [the NPS] statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors” (46.420(d)). The NPS has identified Alternative B as the preferred alternative because Alternative B would meet the project purpose and need. Alternative B would provide guidance on treatment for the entire battlefield cultural landscape, mitigate erosion, protect witness trees, and improve watershed stewardship.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter describes current environmental conditions in and around the project area. The discussion is focused on resources that could potentially be affected by the implementation of the proposed project and provides a baseline for understanding the current condition of the resources. This section also includes an analysis of the environmental consequences, or “impacts,” of the No Action and Action Alternatives.

The Affected Environment description is followed by the Environmental Consequences analysis for each resource topic. The resource topics analyzed here correspond to the planning issues and concerns described in the Purpose and Need section of this EA.

In accordance with the Council on Environmental Quality (CEQ) regulations, the environmental consequences analysis includes the direct, indirect, and cumulative impacts potentially resulting from the proposed alternatives (40 CFR 1502.16). The intensity of the impacts is assessed in the context of the Battlefield’s purpose and significance, and any resource-specific context that may be applicable (40 CFR 1508.27). Where appropriate, mitigating measures for adverse impacts are described and their effect on the severity of the impact is noted. The methods used to assess impacts vary depending on the resource being considered but are generally based on a review of pertinent literature and Battlefield studies, information provided by on-site experts and other agencies, professional judgment, and Battlefield staff knowledge and insight.

CULTURAL LANDSCAPES

Historic properties were identified within the project’s Area of Potential Effect (APE) (see Figure 6). As defined by 36 CFR 800.16(d), the APE represents “the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist.” Historic properties in the APE are documented in the Antietam National Battlefield Cultural Landscape Report (CLR) (NPS 2021). The NRHP-listed Antietam National Battlefield historic district and nine other cultural landscapes that have been documented in CLRs and/or Cultural Landscape Inventories (CLIs) sit within the cultural landscape.

In this EA, the different types of historic properties are addressed by resource type to best describe the impacts of the proposed project on the APE. The NPS evaluates historic buildings and structures, cultural landscapes, and archeological resources as different resource categories. This section specifically addresses cultural landscapes. Archeological resources are addressed in the Archeological Resources section that follows.

Cultural landscapes consist of “a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein) associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values.” Cultural landscapes include the features and systems that compose the existing landscape and convey the historic character of the landscape associated with a historic period of significance. Landscapes provide a setting for historic buildings and structures. Cultural landscape characteristics include natural systems and features, topography, spatial organization, vegetation, land use, circulation, views and vistas, buildings and structures, and small-scale features that contribute to the landscape’s historic character.

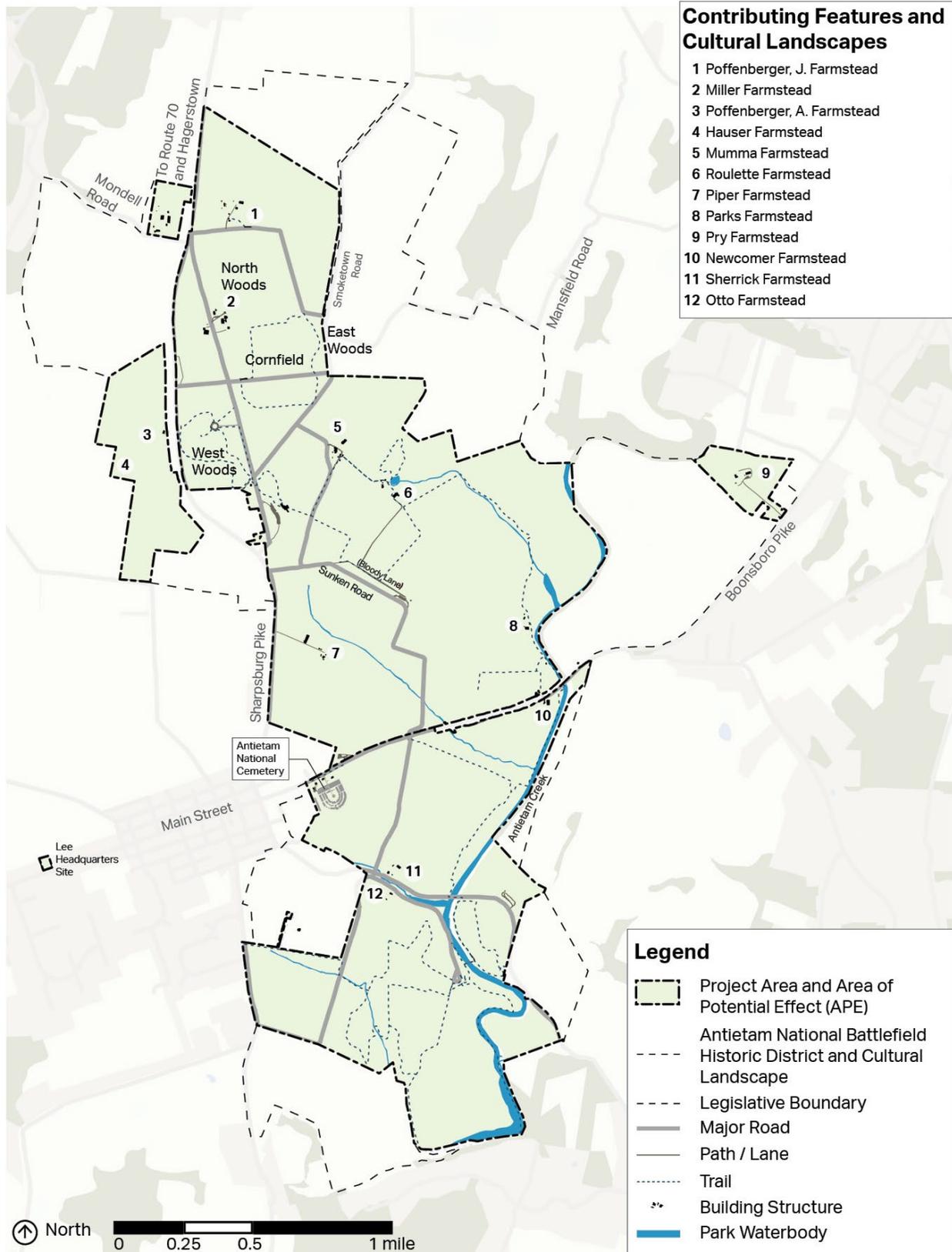


Figure 6: Area of Potential Effect

Affected Environment

Historic properties in the APE are documented in the Antietam National Battlefield Cultural Landscape Report (CLR) (NPS 2021); the NRHP nomination and additional documentation for the Antietam National Battlefield historic district (NPS 1982, 2009, 2018b); and the CLRs or CLIs for the following cultural landscapes:

- Antietam National Cemetery (NPS 2005a, 2014)
- Burnside Bridge Area (NPS 2016, 2018c)
- Newcomer Farmstead (NPS 2018a)
- Mumma Farmstead (NPS 2004a)
- D.R. Miller Farmstead (NPS 2005b)
- Parks Farmstead (NPS 2011)
- Joseph Poffenberger Farmstead (NPS 2008)
- Roulette Farmstead (NPS 2004b)
- Visitor Center Area (NPS 2018d)

Additional historic properties in the APE are located in the following farmsteads, which are cultural landscapes but have not been documented in CLRs or CLIs:

- Hauser Farmstead
- Newcomer Farmstead
- Otto Farmstead
- Piper Farmstead
- Pry Farmstead
- A. Poffenberger Farmstead
- Sherrick Farmstead

The APE contains numerous overlapping historic properties, including cultural landscapes and districts. Many resources contribute to multiple properties. The NRHP-listed Antietam National Battlefield historic district and 16 cultural landscapes sit within the Antietam National Battlefield cultural landscape. For these reasons, the focus of this section is on the Antietam National Battlefield cultural landscape. A description of this cultural landscape, as well as the historic district and the 16 other cultural landscapes, and its contributing resources is provided in Appendix A, the Assessment of Effects (AOE) prepared for the proposed project as part of the Section 106 process. Contributing elements to the Antietam National Battlefield cultural landscape include, as described in Appendix A, land use, spatial organization, topography, views and vistas, natural systems and features, vegetation, buildings and structures, cluster arrangement, circulation, archeological sites, and small-scale features.

About the Analysis

Potential impacts on cultural landscapes could affect the historic character and integrity of the landscape as defined by the CLRs and CLIs. The impacts, direct or indirect, adverse or beneficial, are analyzed in consideration of additional regulations and guidance provided by NEPA, Section 106 of the National Historic Preservation Act (NHPA), the *Secretary of Interior's Standards for the Treatment of Historic*

Properties, NPS Management Policies 2006, Director's Order 28, and other NPS guidance for the treatment of cultural landscapes.

As part of the Section 106 process, an AOE has been prepared for the proposed project and will be submitted to the Maryland SHPO and tribes for consultation and concurrence in conjunction with this EA.

Impacts of Alternative A: No Action

Under Alternative A, no changes would occur to the cultural landscape's contributing land use, spatial organization, topography, natural systems and features, vegetation, buildings and structures, cluster arrangement, circulation, and small-scale features. No changes to existing vegetation would occur. No removal of obstructive vegetation or overhead utility lines to rehabilitate contributing views would occur.

In the short term, Alternative A would not change contributing views. Over the long term, the continued growth of vegetation in areas of the Battlefield that were open in 1862 and currently obstruct or encroach some of these contributing views would continue to further obscure or encroach on these views (see Figure 7, Figure 9, and Table 2).

Under Alternative A, there would be no new impacts; the NPS would continue to implement their current landscape maintenance regimen. The landscape maintenance regimen could include ground disturbing activities, such as tree planting, digging holes for fence posts, or grubbing of roots or other ground disturbing activities associated with vegetation clearing. The maintenance of existing agricultural use could include plowing that extends beyond the depth of the current plow zone and/or future agricultural practices could result in increased erosion. These activities could result in adverse impacts on contributing archeological sites. The planting of annual crop and grass seed could require some ground disturbance although it is anticipated that any such ground disturbance would occur within areas previously disturbed by agricultural plowing. Battlefield areas with erosion would continue to erode, which could also diminish the integrity of underlying contributing archeological sites.

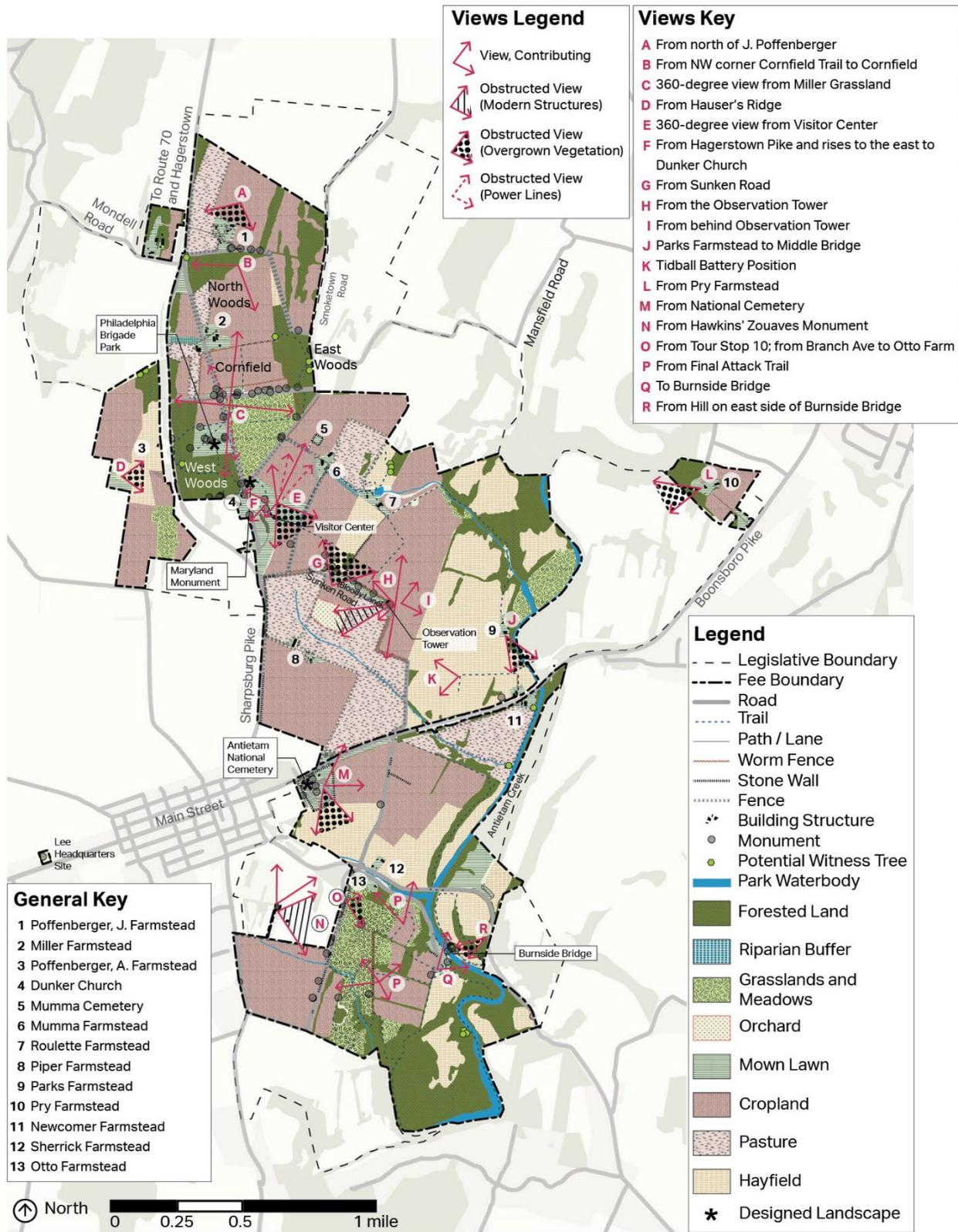


Figure 7: Contributing Views overlaid on Alternative A: No Action

Impacts of Alternative B: Action Alternative

Alternative B would retain the cultural landscape's contributing topography, natural systems and features. No change would occur to contributing land use, spatial organization, views and vistas, vegetation, buildings and structures, cluster arrangement, circulation, and small-scale features, except those described below. For analysis purposes, archeological sites that contribute to the Antietam National Battlefield cultural landscape are addressed holistically in the Archeological Resources section of this EA.

Land Use and Vegetation

Alternative B would change the existing land use of approximately 427 acres of the 1,991-acre project area by reforesting approximately 140 acres of woodland areas and establishing approximately 287 acres of additional grasslands and meadows by converting some hayfields and cropland. Although these changes would alter contributing land uses and vegetation, the addition of forests, grasslands, and meadows would not be noticeable at a large scale and agriculture would remain the predominant land use. The replacement of some hayfields and croplands with grasslands and meadows would also retain the preceding open character of the landscape as agricultural fields. The addition of forests, grasslands, and meadows would also be consistent with historic uses of the landscape.

Spatial Organization

Reforested areas along Antietam Creek would shift the configuration of open and closed areas along Antietam Creek, increasing the contrast between open fields and wooded areas.

Views and Vistas

Alternative B would re-establish contributing views through clearing of obstructive successional vegetation and the placement of overhead utility lines underground or relocating them. These proposed actions would improve the ability of the landscape to represent historic conditions (see Figure 8). The impacts of Alternative B on specific contributing views are summarized in Table 2.

Buildings and Structures, Cluster Arrangement, Circulation, and Small-Scale Features

Like Alternative A, the NPS would continue to implement their current landscape maintenance regimen under Alternative B. Although these maintenance activities could result in noticeable changes to contributing buildings and structures, cluster arrangements, circulation features, and small-scale features, there would be no new impacts on these contributing features. These maintenance activities would help preserve and maintain these contributing features and be undertaken in a manner that is consistent with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*.

At the Sunken Road and Observation Tower cluster, Alternative B would convert some existing croplands to the north of Sunken Road (Bloody Lane) to hayfields. At the Philadelphia Brigade Park, Alternative B would re-introduce original tree plantings based on recommendations in a future Philadelphia Brigade Park CLR. However, the formal arrangement of trees would continue to frame the roadway and battlefield, creating an enclosed space.

At the Mumma Farmstead, new universally accessible routes would be provided to the farmhouse and the Mumma barn. Universal accessibility improvements would also be implemented within the Antietam National Cemetery. The routes would be planned in a way that avoid or minimize changes to overall circulation patterns at the Mumma Farmstead and Antietam National Cemetery. The routes would be planned and designed in a manner that is consistent with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*.

In summary, the proposed changes in vegetation and maintenance or rehabilitation of other landscape elements are consistent with the Battlefield's historic setting, character, and period of interpretation. The landscape's agricultural character would be preserved. The proposed changes to vegetation would preserve the vegetative mosaic similar in appearance to the historic condition. The proposed changes to contributing views would preserve historic significant views and vistas across the battlefield landscape. Impacts to contributing views and viewsheds would be either negligible or beneficial to the historic landscape. Contributing circulation routes would be preserved by maintaining roads and trails that follow historic routes. Maintenance, monitoring, and rehabilitation activities, as well as the planning and design of new universally accessible routes at the Mumma Farmstead and Antietam National Cemetery would be undertaken in a manner that is consistent with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*.

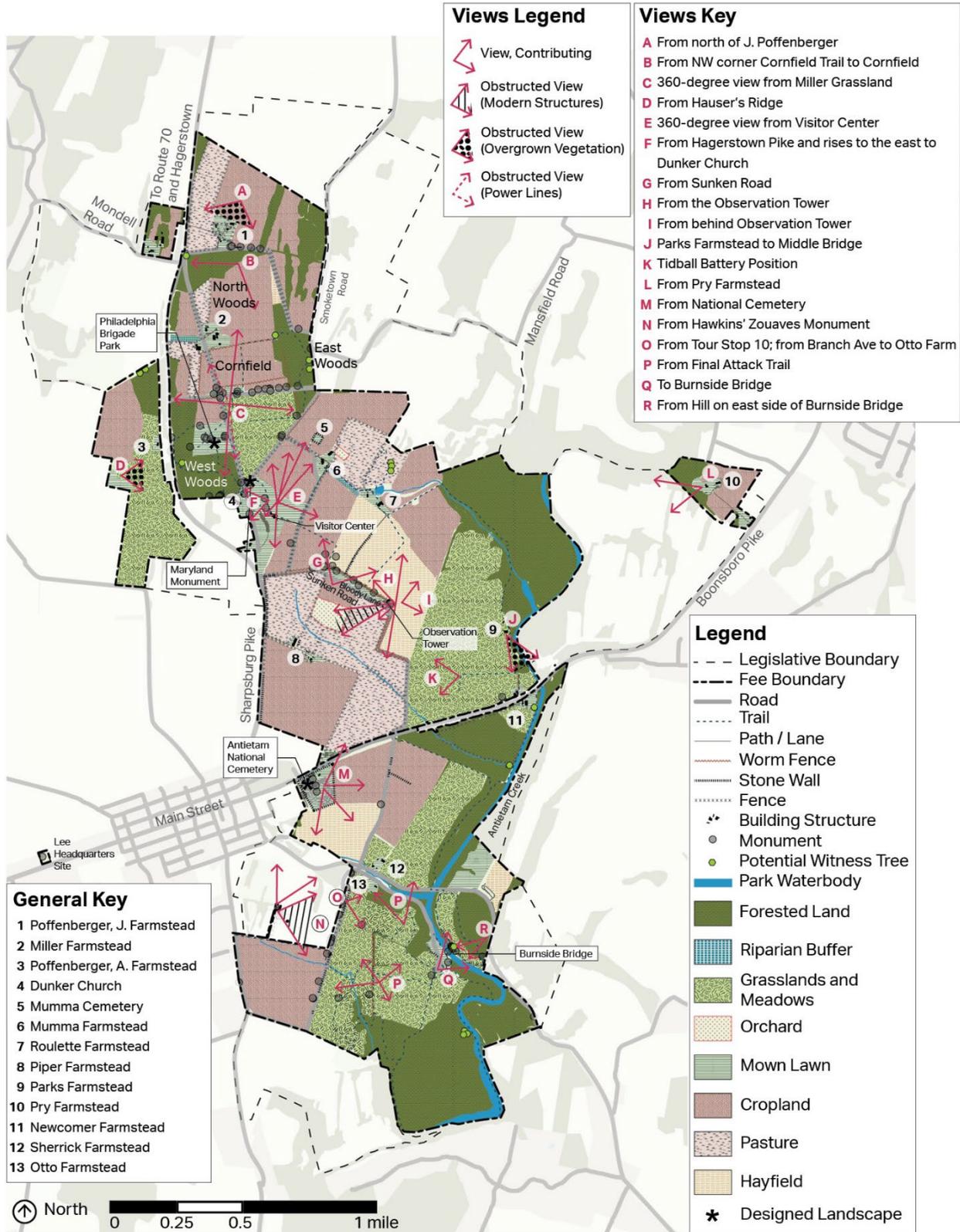


Figure 8: Contributing Views overlaid on Alternative B: Action Alternative

ARCHEOLOGICAL RESOURCES

Affected Environment

This section of the EA addresses archeological resources within the APE. The Battlefield contains 34 documented archeological sites related to Indigenous occupation, agricultural practices, the Civil War, and other historic activity. Of these 34 NPS archeological sites, 33 are located within the fee boundary (i.e., the project area) and one is located within the legislative boundary. Four of the 33 sites within the project area contribute to the Antietam National Battlefield NRHP listing. One of the 33 sites has been determined eligible for the NRHP. Five of the 33 sites have been recommended eligible for the NRHP.

The entire Battlefield is an archeological site, consisting of artifacts, building remnants, and possibly additional graves of soldiers associated with the Battle of Antietam. Other archeological sites include agricultural features, farmsteads, a historic structure, a building, habitations, a battle site, battlefields, artifact scatters, and lithic scatters.

Approximately 48 percent of the Battlefield has been subject to some level of archeological survey. The intensity of survey within that 48 percent, however, is not comprehensive. Some of the archeological surveys have not included the full suite of archeological survey types necessary to identify archeological components within the Battlefield (i.e., pedestrian inspection, interval shovel testing, metal detecting). Given the variety of land uses present over the past >10,000 years, and the area's role in the Battle of Antietam, additional archeological resources are likely to exist in the APE relevant to Indigenous occupation, agricultural development, the Civil War, the Commemorative Period (1864-1933), and Mission 66 (1960-1967) (NPS 2021).

About the Analysis

Archeological resources typically exist in subsurface contexts. Archeological resource surface finds are also possible. Archeological structural ruins, such as stairs, can also occur above ground. Therefore, potential impacts on archeological resources are assessed according to the extent to which the proposed alternatives would involve ground disturbing activities such as excavation or grading. Analysis of possible impacts on archeological resources is based on a review of previous archeological studies, consideration of the proposed design concepts, and other information available on the archeological context of the area. The APE for archeological resources is identical with that defined for historic properties.

As defined in the implementing regulations of the Archaeological Resources Protection Act of 1979 (ARPA) at 43 CFR 7.3a, archeological resources are any material remains of human life or activities which are at least 100 years of age, and which are of archaeological interest. Any resources within the APE that meet this definition and are, or may be, defined as significant under NRHP Criterion D (having the potential to provide information important to history or prehistory) are granted protection as required under ARPA. ARPA is intended to protect archeological resources on public lands for the present and future benefit of the American people.

As part of the Section 106 process, an Assessment of Effects has been prepared for the project and will be submitted to the Maryland SHPO and tribes for review and approval in conjunction with this EA.

Impacts of Alternative A: No Action

Under Alternative A, adverse impacts on the Battlefield's documented and undocumented archeological resources could occur as a result of the NPS continuing to implement their current landscape maintenance regimen. These impacts are not considered new impacts on archeology because these are ongoing impacts from the current regimen. This regimen could include ground disturbing activities, such as tree planting,

digging holes for fence posts, or grubbing of roots or other ground disturbing activities associated with vegetation clearing. The maintenance of existing agricultural use could include plowing that extends beyond the depth of the current plow zone and/or future agricultural practices could result in increased erosion. The planting of annual crop and grass seed could require some ground disturbance although it is anticipated that any such ground disturbance would occur within areas previously disturbed by agricultural plowing. Battlefield areas with erosion would continue to erode, which could also diminish the integrity of underlying documented and undocumented archeological resources.

The NPS would minimize ground-disturbing activities to the extent practicable. The NPS would also avoid known archeological resources during landscape management and maintenance to the extent practicable. Consultations with the Maryland SHPO and tribes would occur, as needed, under the provisions outlined in 36 Code of Federal Regulations (CFR) Part 800 and regulations issued by the Advisory Council on Historic Preservation (ACHP) implementing Section 106 of the NHPA of 1966, as amended (54 United States Code (USC) 306108). If NRHP-eligible or potentially eligible archeological resources are found to be present, the NPS would define the appropriate avoidance, minimization, and mitigation measures to be taken in consultation with the SHPO and tribes.

NPS protocols for the unanticipated discovery of cemeteries or human remains would be followed. If any Native American burials, cemeteries, or funerary objects are encountered, the NPS would contact federally recognized Tribes with affiliation in Maryland, in accordance with NAGPRA.

The NPS would also develop an Unanticipated Discoveries Plan to outline communication, management, and consulting protocols in the event unanticipated archeological resources are encountered anywhere in the Battlefield as a result of ground disturbances arising from landscape management and maintenance activities.

Impacts of Alternative B: Action Alternative

Like Alternative A, adverse impacts on the Battlefield's documented and undocumented archeological resources could occur as a result of the NPS continuing to implement their current landscape maintenance regimen under Alternative B. These impacts are not considered new impacts on archeology because these are ongoing impacts from the current regimen. This regimen could include ground disturbing activities, such as tree planting, digging holes for fence posts, or grubbing of roots or other ground disturbing activities associated with vegetation clearing. The maintenance of existing agricultural use could include plowing that extends beyond the depth of the current plow zone and/or future agricultural practices could result in increased erosion. The planting of annual crop and grass seed could require some ground disturbance although it is anticipated that any such ground disturbance would occur within areas previously disturbed by agricultural plowing.

Alternative B proposes multiple changes to the existing landscape that could result in ground disturbance with the potential to impact the integrity of archeological resources. Activities associated with these changes include the following:

- The reforestation of approximately 140 acres of the Battlefield would involve the digging of holes to plant tree saplings, as well as the growth of the trees and the expansion of their roots.
- The enhancement of riparian buffers could include the planting of trees, realignment of streams, or other ground disturbing activities. The planting of riparian vegetation, though, could also aid in the protection of archeological site integrity by reducing or preventing erosion.
- The conversion of approximately 303 acres of hayfields and cropland to native grasses would include original planting of annual grass seeds, which could require some ground disturbance. It is anticipated

that any such ground disturbance would occur within areas previously disturbed by agricultural plowing.

- At the Mumma Farmstead, the restoration of missing farmstead vegetation, such as the kitchen gardens, would involve ground disturbance. The planting of approximately two acres of orchards would involve the digging of holes to plant trees, as well as the growth of the trees and the expansion of their roots.
- Landscape changes at the three designed landscapes of Philadelphia Brigade Park, the Maryland Monument, and the National Cemetery would involve ground disturbing activities such as tree and other vegetation planting, grading, and certain types of vegetative clearance.
- The clearing of obstructive successional vegetation to re-establish and maintain viewsheds could involve the grubbing of roots or other ground disturbing activities associated with vegetation clearing.
- To rehabilitate views from the visitor center to the north, the placement of overhead utility lines along Dunker Church Road (historic Hagerstown Pike) underground or relocation to along MD Route 65 would involve ground disturbing activities such as digging and vegetation clearance.

Ground disturbance related to the proposed project elements could disrupt or displace known and unknown archeological resources and result in a loss of integrity of the archeological resource, resulting in an adverse impact. Further analysis is necessary to determine the level of archeological survey effort needed to identify archeological resources within those portions of the Battlefield where proposed landscape changes could result in impacts.

The NPS would minimize ground-disturbing activities to the extent practicable. The NPS would also avoid known archeological resources during landscape management and maintenance to the extent practicable. The NPS would conduct Phase IB archeological survey in those areas of the Battlefield that have not been subjected to the full suite of intensive archeological survey methods to identify archeological resources that could be impacted by landscape management and maintenance activities that have the potential for ground disturbance, could result in a loss of archeological integrity, and could result in adverse impacts on archeological resources. These surveys would take place where ground disturbance is proposed after exact project footprints are identified and prior to site work. Any such archeological studies and investigations would be carried out and evaluated for effect before construction and in consultation with the Maryland SHPO and tribes. Consultations would occur under the provisions outlined in 36 Code of Federal Regulations (CFR) Part 800 and regulations issued by the Advisory Council on Historic Preservation (ACHP) implementing Section 106 of the NHPA of 1966, as amended (54 United States Code (USC) 306108). If NRHP-eligible or potentially eligible archeological resources are found to be present, the NPS would define the appropriate avoidance, minimization, and mitigation measures to be taken in consultation with the SHPO and tribes.

NPS protocols for the unanticipated discovery of cemeteries or human remains would be followed. If any Native American burials, cemeteries, or funerary objects are encountered, the NPS would contact federally recognized Tribes with affiliation in Maryland, in accordance with NAGPRA.

The NPS would establish Unanticipated Discoveries protocols for each landscape management or maintenance activity as part of the Section 106 documentation process prior to implementation of work. The NPS would follow the established Unanticipated Discoveries protocols in the event unanticipated archeological resources are encountered anywhere in the park as a result of ground disturbances.

WATER RESOURCES

Affected Environment

The Battlefield lies within the Antietam Creek Watershed, a tributary of the greater Potomac River basin. “The quality of Antietam Creek and its tributaries are potentially impacted by agricultural inputs (manure and fertilizers, pesticides) from the Battlefield and adjacent farmlands, upstream industrial and sewage discharge, and the increase of impervious surfaces and stormwater runoff in surrounding residential areas” (Thomas, et al. 2011). A porous limestone bed within the Battlefield means that groundwater can be affected due to a high rate of groundwater discharge from the karst landscape (Thomas, et.al. 2011).

A Total Maximum Daily Load (TMDL) is the ideal pollution limit set for identified problem pollutants in a waterbody. The cap defines the maximum amount of each pollutant that the waterbody can theoretically receive and still meet water quality standards for its designated uses. The Maryland Department of the Environment (MDE) established TMDLs for carbonaceous and nitrogenous biochemical oxygen demand (CBOD and NBOD, respectively) and sediment. MDE has also identified water of Antietam Creek as impaired by bacteria, nutrients, and impacts to biological communities (Thomas, et. al. 2011).

The NPS develops operational plans to minimize erosion, control agricultural sources of pollution, and meet state and federal requirements. The NPS prepares Soil Conservation and Water Quality Plans (SCWQP) for agricultural areas. The SCWQPs are consistent with National Resources Conservation Service (NRCS) Standards and Specifications and identify operations and maintenance guidelines. The NPS also develops nutrient management plans for each crop and each field within the Battlefield in order to address nitrogen and phosphorous.

Approximately 45 acres of the 1,991-acre project area (2.2 percent) are classified as wetlands according to the USFWS National Wetlands Inventory. The wetlands are primarily comprised of ‘freshwater forested/shrub wetland’ (i.e., floodplain and riparian areas along Antietam Creek and its tributaries) and the waterways themselves—Antietam Creek, Mumma Spring, and Sharpsburg Creek. The wetlands also include small areas of freshwater emergent wetlands and freshwater ponds.

About the Analysis

Impacts on water resources and stormwater within and in the vicinity of the Battlefield potentially resulting from the implementation of the proposed alternatives were analyzed in consideration of the types of projects included in the alternatives and where they would occur, the requirements of TMDLs applicable to Antietam Creek, and professional judgment.

Impacts of Alternative A: No Action

Alternative A would continue the Battlefield’s existing landscape management. Forested areas would continue to be present in narrow stretches along Antietam Creek and other streams, interspersed among agricultural uses, and as largely discontinuous areas along the edges of the Battlefield. Grasslands and meadows would primarily remain in three distinct areas of the Battlefield. Existing areas designated for agricultural purposes, including cropland, pasture and hayfields, would remain in place. No changes would occur to the orchard, mown areas, and designed landscapes. NPS would continue to manage water quality through SCWQPs, nutrient management plans, and BMPs.

The amount of land available for agricultural uses would remain unchanged. No reduction in pollutants as a result of land use changes would occur. The continuation of current landscape management practices would not enhance filtration of pollutants. No changes to the streambanks or riparian areas would occur, which would continue and possibly expand areas experiencing erosion. Therefore, Alternative A would maintain the levels of CBOD, NBOD, and sediment pollutants in the Antietam Creek watershed.

Impacts of Alternative B: Action Alternative

Alternative B would enhance riparian buffers and mitigate erosion. Riparian buffers would be maintained or enhanced, through planting of trees and shrubs, adjacent to Antietam Creek, Mumma Spring, and Sharpsburg Creek, streams, and intermittent drainages as needed. Alternative B would reduce agricultural uses (i.e., croplands, hayfields, and pastures) by an estimated total of 426 acres within the Battlefield. The NPS would continue to develop SCWQPs and nutrient management plans for agricultural uses within the Battlefield.

The enhancement of riparian buffers would improve the ecological function of the Battlefield by filtering sediment and nutrients, reducing the CBOD, NBOD, and sediment pollutants in the Antietam Creek watershed. The reduction in agricultural use would reduce the amount of manure, fertilizers, and pesticides used within the Battlefield. As a result, the Plan would decrease the potential for these pollutants to affect Antietam Creek and its watershed. Additionally, the conversion of 441 acres of agricultural fields to forest, grasslands, and meadows would reduce soil disturbance, and thereby potential erosion into waterways.

Approximately 140 acres of forest rehabilitation and two acres of orchard re-establishment would disturb the soil and could potentially result in erosion, thereby affecting water resources. Such disturbance and vegetation removal would increase the vulnerability of soil to water and wind erosion and potentially result in the corresponding sedimentation and pollution of downstream waters during implementation. In order to minimize and mitigate potential impacts, the NPS and/or its contractors would adhere to applicable BMPs during implementation to minimize the erosion of exposed soils and the corresponding pollution and sedimentation of downstream watercourses.

Erosion mitigation efforts and riparian buffer enhancement would occur in areas identified as wetlands. The NPS would adhere to procedures set forth in Reference Manual #77-1: Wetland Protection in order to comply with NPS Director's Order (DO) #77-1: Wetland Protection and to avoid, minimize, and compensate for adverse impacts on wetlands. According to Resource Manual #77-1, actions designed to restore degraded (or completely lost) wetland, stream, riparian, or other aquatic habitats or ecological processes, which are included in elements of Alternative B, are exempted from the Statement of Findings requirements and compensation requirements described in the manual as long as specific conditions and BMPs are satisfied. For this exception, "restoration" refers to reestablishing environments in which natural ecological processes can, to the extent practicable, function as they did prior to disturbance.

As a result of these actions, Alternative B would result in overall beneficial impacts on water resources.

VEGETATION

Affected Environment

Vegetation types within Antietam National Battlefield include forest; native grasslands and meadows; and agricultural fields maintained as cropland, hay, or pasture.

Forests

Forests comprise an estimated 369 acres of the Battlefield. These include naturally wooded areas, re-established historic woodlots, and portions of floodplain forest. Antietam National Battlefield lies within the Ridge and Valley vegetation ecosystem. As noted in the 2021 Antietam National Battlefield CLR, the ecosystem is "composed of plant communities belonging to the Northeastern Interior Dry-Mesic Oak Forest. Upland areas of the Battlefield are composed of oaks (*Quercus* spp.), maples (*Acer* spp.), hickories (*Carya* spp.), and walnut (*Juglans* spp.) as the dominant species. Along Antietam Creek, 25 acres are classified as "Rich Floodplain Forest," and this area's lower elevation is composed of oaks

(*Quercus* spp.), sycamore (*Platanus occidentalis*), silver maple (*Acer saccharinum*), tulip poplar (*Liriodendron tulipifera*), and beech (*Fagus grandifolia*). Shrubs located in this forest type include blueberries, mountain laurel, and other varieties of shrubs adapted to acidic soils” (NPS 2021). Existing woods appear to be in healthy condition, with good forest layering and tree canopy (NPS 2021).

Native Grasslands and Meadows

Antietam National Battlefield contains approximately 128 acres of native grasslands and meadows. Species of this vegetation type begin growth in late spring and peak during warm summer months. These are typically bunch grasses and forbs that are native to the Mid-Atlantic region.

Agricultural Fields

Of the 1,991 acres of the Battlefield under NPS jurisdiction, approximately 1,250 acres are permitted for agriculture and maintained as cropland, hayfield, or pasture. The SCWQP includes general guidelines for the management of the farmland included in these permits. Crops grown include wheat, soybeans, corn, and barley. Crops are rotated on a regular basis for insect pest control and soil health, and cover crops are used between harvests.

Hayfields and pastures are composed of cool-season grasses that initiate growth in early spring and flower from late spring through early summer. Most cool-season grasses are non-native to the Mid-Atlantic region. Species typically include bluegrass (*Poa* spp.), brome (*Bromus* spp.), fescue (*Festuca* spp.), timothy (*Phleum pratense*), and orchard grass (*Dactylis glomerata*). Farmers add soil amendments like lime, that encourages growth of naturally occurring cool-season grasses, which in turn reduce the presence of exotic and invasive weed species. The cool-season grasses are cut for hay or used for cattle and sheep grazing. Many of the agricultural fields are separated by historic fence lines, delineated now by lines of trees and other vegetation (NPS 2021).

Other

NPS maintains approximately 133 acres as mown lawn. Areas of mown lawn include a buffer of 10 to 20 feet in width along four roads, around the visitor center, Dunker Church, Mumma Cemetery, the Philadelphia Brigade Park, Sunken Road (Bloody Lane) and the Observation Tower, the Lee Headquarters Site, and adjacent the Burnside Bridge Overlook. Mown lawn is also found around each of the farmsteads. Locations throughout the Battlefield also contain ornamental vegetation, such as trees and shrubs planted around farmsteads, the visitor center, Mumma Cemetery, and the Lee Headquarters Site. An eight-acre apple orchard is located on the Piper Farm.

About the Analysis

Impacts on vegetation in and in the vicinity of the project area potentially resulting from the implementation of the proposed alternatives were analyzed in consideration of the types of projects included in the alternatives, the context and setting of where they would occur, and professional knowledge and judgment.

Impacts of Alternative A: No Action

Alternative A would continue the Battlefield’s existing management of vegetation. Forested areas would continue to be present in narrow stretches along Antietam Creek and other streams, interspersed among agricultural uses, and form largely noncontiguous areas along the edges of the Battlefield. Grasslands and meadows would remain in three distinct areas of the Battlefield. Areas designated for agricultural purposes would remain, as would the operations for cropland, pasture, and hayfields. No changes to the

orchard, mown areas, designed landscapes, and obstructive successional vegetation would occur. As a result, no changes in vegetation would occur.

Impacts of Alternative B: Action Alternative

Alternative B would increase the approximate land coverage of forests to 508 acres, native grasslands and meadows to 415 acres, and orchards to 10 acres. Alternative B would reduce the amount of agricultural area to 824 acres and the amount of mown lawn to 132 acres. The increase in forest area would occur primarily along streams within the Battlefield, including Antietam Creek. Areas where native grasslands and meadows would increase include west of MD Route 65 south of the A. Poffenberger Farmstead, north of Boonsboro Pike at the Parks and Newcomer Farmsteads, and south of Boonsboro Pike at the Newcomer, Sherrick, and Otto Farmsteads. Areas where mown lawn would decrease include in the Battlefield areas around Mondell Road and the Parks Farmstead. Although mown lawn would increase at the A. Poffenberger Farmstead, the total amount of mown lawn at the Battlefield would decrease by one acre. These changes are outlined in Table 1.

Table 1: Areas of Existing and Proposed Vegetation

Vegetation Type	Existing Acreage	Proposed Acreage	Change in Acreage
Forest	369	508	140
Grassland and Meadow	128	415	287
Cropland	695	538	-158
Pasture	207	174	-33
Hayfield	348	112	-235
Mown Lawn	133	132	-1
Orchard	8	10	2
Riparian Buffer	2	2	0

Note: The total existing acreage and total proposed acreage vary slightly due to rounding approximations.

Forest rehabilitation and grassland and meadow establishment would support the restoration of natural conditions, including the Northeastern Interior Dry-Mesic Oak Forest.

Obstructive vegetation removal would disturb areas and potentially offer the opportunity for invasive species to establish themselves. The disturbed areas would be re-vegetated or otherwise stabilized following the completion of implementation, which would reduce the potential for invasive species. Additionally, invasive species would be treated in accordance with the Invasive Plant Management Plan. As a result, wildlife would experience a greater range and expanded habitat. Overall, Alternative B would result in overall beneficial impacts on wildlife and wildlife habitat.

WILDLIFE AND WILDLIFE HABITAT

Affected Environment

In its 2011 Natural Resource Condition Assessment (NRCA), NPS used multiple metrics to assess the conditions of forest, wetland and waterways, and native grassland habitats. Overall, the NRCA assessed these habitats to be in good condition (69 percent attainment of threshold condition). The NRCA assessed cropland and pasture habitats as being in good condition (69 percent attainment of threshold condition). Forests and wetlands and waterways were in fair condition, and native grasslands were assessed as poor.

Local connectivity is below average for most of the Battlefield due to the presence of developed and other altered areas. Forests along Antietam Creek in the southern portion of the Battlefield scored the highest for connectivity of any area in Antietam, with a connectivity score of average.

Patches of forest within Antietam National Battlefield are well connected; however, forest interior area is small, providing moderate habitat potential for native fauna including forest interior dwelling bird species. Very high deer populations were present within these forest areas as of 2011, resulting in limited regeneration capacity of these forests, as well as trampling, overgrazing, and reduction of habitat value for wildlife. Although deer are still common in the Battlefield, NPS has managed deer populations at the Battlefield through implementing a deer management plan starting in 2017 to protect and restore native plants and other natural and cultural resources. The abundant presence of exotic herbaceous and woody species displaces native species and reduces habitat value.

Hayfields and pastures within Antietam National Battlefield include areas of cool-season grassland, which are mostly non-native to the Mid-Atlantic region and provide less habitat value than native warm-season grassland. The Battlefield does contain native grasslands and meadows, which support greater habitat value for grassland birds, native grass species, small mammals, and insect pollinators. These areas are not contiguous, however, limiting their habitat value.

Wetland and waterway habitats show no sign of acidification or low oxygen; however, high salinity and nutrients indicate degraded wetland and waterway habitat value. These are reflected in the regionally low benthic index of biotic integrity and fish diversity (Thomas et.al. 2011).

The high salinity observed in Antietam is likely also a result of the karst landscape surrounding the Battlefield. Water passing through karst systems contains high levels of dissolved materials due to the dissolution of the bedrock. As noted in the NRCA, “as salinity measures dissolved salts, karst streams are likely to return high salinity readings (Norris and Pieper 2010). These high levels of dissolved material may also impact benthic invertebrate communities, which were very degraded in Antietam. This dissolved material can clog the gills of these animals, limiting their survival and reproduction (R. Hilderbrand, pers. comm.)”

About the Analysis

Potential impacts on wildlife and wildlife habitat within the project area resulting from the implementation of the proposed alternatives were analyzed in consideration of the types of projects included in the alternatives, the context and setting of where they would occur, and professional knowledge and judgment.

Impacts of Alternative A: No Action

Alternative A would retain existing wildlife habitat. Forested areas would continue to be present in narrow stretches along Antietam Creek and other streams, interspersed among agricultural uses, and form largely noncontiguous areas along the edges of the Battlefield. Grasslands and meadows would primarily

remain in three distinct areas of the Battlefield. Areas designated for agricultural purposes would remain, as would the operations for cropland, pasture, hayfields. No changes would be made to the orchard, mown areas, and designed landscapes. NPS would continue to manage water quality through SCWQPs, nutrient management plans, and BMPs. As a result, no changes to wildlife and wildlife habitat would occur.

Impacts of Alternative B: Action Alternative

Alternative B would increase the land coverage of forests to 508 acres, native grasslands and meadows to 415 acres, and orchards to 10 acres. Alternative B would reduce the amount of area designated to cropland and pasture to 538 and 174 acres, respectively. The increase in forest area would occur primarily occur along streams within the Battlefield, including Antietam Creek. Areas where native grasslands and meadows would include west of MD Route 65 south of the A. Poffenberger Farmstead, north of Boonsboro Pike at the Parks and Newcomer Farmsteads, and south of Boonsboro Pike at the Newcomer, Sherrick, and Otto Farmsteads. Areas of agricultural use within these locations would be reduced.

Alternative B would expand wildlife habitat within the Battlefield by adding an additional 140 acres of forest and an additional 287 acres of grasslands and meadows to the Battlefield. The conversion of agricultural fields to forest, grassland, and meadow uses would increase the areas available for wildlife within the Battlefield. The expanded grasslands and meadows would offer transitions between forested and agricultural areas. Additionally, transitioning from agricultural uses to grassland and meadow habitats would maximize the natural resource value of these areas.

Alternative B would improve habitat connectivity within the Battlefield. The expanded forest would link currently disparate forested areas within the Battlefield. Similarly, expanded grasslands and meadows within the Battlefield would provide connections to areas that are currently fragmented. As a result, wildlife would experience a greater range and expanded habitat. Alternative B would result in beneficial impacts on wildlife and wildlife habitat.

VISITOR USE AND EXPERIENCE

Affected Environment

The Battlefield provides multiple opportunities for visitors to learn about the battle of Antietam through interpretive wayside signage, the visitor center, Ranger-led programs, education programs, special events, living history programs, and volunteers stationed at key tour sites. The Battlefield can be explored by vehicle, walking, bicycling, or horseback riding. (NPS 2013, 2019).

Between 2015 and 2019, the Battlefield received an average of approximately 336,000 visitors annually. Peak visitation occurred June through August with lowest visitation levels in January and February (NPS n.d.).

Views and Interpretation

The purpose of Antietam National Battlefield is to preserve, protect, restore, and interpret for the benefit of the public the resources associated with the Battle of Antietam and its legacy (NPS 2013). A focus of current interpretation at the Battlefield is to provide visitors opportunities to experience the battlefield landscape much as it appeared in September 1862 (NPS 2019). One way visitors experience the battlefield landscape is through replica historic fencing, which helps visitors understand the events of the battle, and viewsheds, which are defined by topography and vegetation. Visitors experience expansive views of the landscape in many locations, including the visitor center, Miller grassland, Observation Tower, along the tour roads, from the Pry Farm, and the Hawkins' Zouaves Monument. Within the remainder of the study area, other views are more limited and often focused towards a particular

landmark, such as the view to the Burnside Bridge, along Sunken Road (Bloody Lane), to Dunker Church and the Maryland Monument. In these places, the view is framed by the surrounding wooded landscape.

Approximately 65 percent of the vegetation patterns from 1862 are in the same condition today. The farms and farmlands in and near the Battlefield appear as much as they did on the eve of the battle in 1862. However, the Battlefield's landscape has changed in some areas. Views of these changed areas may affect how visitors experience and interpret the Battlefield. A summary of changes to the Battlefield's landscape since 1862 is provided below. A summary of existing condition for specific views are provided in Table 2. Note that the existing conditions descriptions in Table 2 are drawn directly from the Antietam National Battlefield CLR, prepared by Quinn Evans for NPS in 2021 (NPS 2021). Examples of views that are currently obscured by power lines or overgrown vegetation are shown in Figure 9.

- Although the continued use of the landscape for agriculture maintains the openness and agrarian character of the landscape, more areas are forested today than occurred in 1862 and through much of the 20th century. This is particularly evident along portions of Antietam Creek.
- The A. Poffenberger/Mary Locher Cabin is obscured from view by vegetation. Visitors often do not realize that there are historic resources on the west side of MD Route 65.
- Successional vegetation growth encloses some views and obscures views to landmarks.
- Views are also impacted by utility lines on Dunker Church Road (historic Hagerstown Pike), at the J. Poffenberger Farm, and Mumma Lane, which distracts from the historic scene.
- There are fewer orchards than there were historically. At the time of the battle, there were orchards at the J. Poffenberger, Mumma, Roulette, Miller, Otto, Sherrick, Piper, and Pry Farmsteads. Today, orchards are only present at the Piper Farm
- Most farmsteads lack the variety of vegetation that was around each farmhouse, including shade trees, ornamental plantings, kitchen gardens, and herb gardens.
- Some woodlots have diminished in size, such as two associated with the J. Poffenberger Farmstead, one in the northwest corner of the farmstead and the other in the northeast.



View C. View from Miller Grassland looking north showing power lines



View G. View from Sunken Road looking north at the intersection with Roulette Lane showing overgrown vegetation



View R. View from hill on east side of Burnside Bridge showing overgrown vegetation

Figure 9: Examples of Views

About the Analysis

Potential impacts on visitor use and experience in the project area were analyzed in consideration of current visitor uses, activities, and experience, the proposed elements included in the alternatives, the estimated increase in visitation that would result from the implementation of each alternative, and professional knowledge and judgment.

Impacts of Alternative A: No Action

Alternative A would not change the Battlefield's existing landscape. Current maintenance practices would continue to be applied to the landscape. No changes to existing vegetation would occur. No removal of vegetation that currently obstructs views would occur.

Table 2 summarizes the impacts of Alternative A on existing views. In the short term, Alternative A would not change existing views. How visitors currently experience and interpret these views would not change. Over the long term, the continued growth of vegetation in areas of the Battlefield that were open in 1862 and currently obstruct or encroach some views, as identified in Table 2, would continue to further obscure or encroach on these views. These changes would alter how visitors experience and interpret the Battlefield.

Alternative A would have no new impacts on replica historic fencing. Replica historic fencing that is not maintained over the long term could fall into disrepair, potentially resulting in its removal.

Impacts of Alternative B: Action Alternative

Alternative B would preserve the Battlefield's historic landscape features to support visitor experiences, and provide appropriate rehabilitation to improve visitor access, enhance visitor understanding, and provide educational opportunities. How specific elements of Alternative B would impact the visitor experience are described below.

- The removal of obstructive successional vegetation and changes in vegetation patterns within important viewsheds would improve the ability of the landscape to represent historic conditions and enhance visitor understanding of it. Rehabilitated views would emphasize visual relationships that are critical to understanding battle movements associated with the Battle of Antietam. How Alternative B would rehabilitate specific views is summarized in Table 2.
- The maintenance of high priority replica historic fencing, and low priority replica historic fencing depending upon funding availability and operational requirements, would help preserve these features and continue to aid in visitor understanding of key areas of the Battlefield.
- Alternative B would have the same ongoing impacts as Alternative A on low priority replica historic fencing that is not maintained. Therefore, these impacts would not be new. Like Alternative A, low priority replica historic fencing that is not maintained over the long term could fall into disrepair, potentially resulting in its removal. Delineations of fields would continue through circulation features, vegetation, or other visual indicators.
- The improved ecological function and new wildlife habitat through the proposed reforestation, enhanced riparian buffers and establishment of new grasslands and meadows in Alternative B could provide increased visitor opportunities for wildlife and nature viewing at the Battlefield.
- The re-establishment of the historic Mumma Farm orchard, the maintenance of the Piper Farmstead orchard, and the rehabilitation of the historic Mumma farmstead-related landscape features would enhance the public's understanding of historic farming.

- The rehabilitation of Philadelphia Brigade Park, Maryland Monument landscape, and Antietam National Cemetery would enhance visitor understanding of these designed landscapes.
- At the Mumma Farmstead and Antietam National Cemetery, new universally accessible routes would provide new user groups and individuals access to points of interest in the Battlefield and new educational opportunities.

The implementation of Alternative B could temporarily close areas of the Battlefield to visitors or temporarily disrupt views. Landscape management activities would be dispersed across the Battlefield, and occur as needed and when appropriate according to planting schedules, minimizing implementation impacts.

The overall changes to the landscape would result in beneficial impacts on visitor use and experience by rehabilitating important views, providing new visitor opportunities, improving universal accessibility at the Battlefield, and preserving and maintaining landscape elements that are important to the visitor understanding the Battlefield.

Table 2: Existing Conditions and Alternative Impacts on Views

View	Existing Conditions	Impacts of Alternative A: No Action	Impacts of Alternative B: Action Alternative
View A. View from north of J. Poffenberger	At the north end of the Battlefield is a view from the cannon emplacement north of Joseph Poffenberger’s farm looking south towards the North Woods and west to Nicodemus Heights. Views from the prominent ridge north of the Joseph Poffenberger farmhouse yard appear much as they did when the Union artillery occupied the site during the battle, except for a line of trees just north of the farmhouse and barn that block views to the south, limiting the full range of sight the artillery had.	No impacts	Alternative B would remove lower branches, or limb up, the line of trees just north of the farmhouse and barn. This would improve views to the south, but the line of trees would continue to obstruct the views to the south.
View B. View from NW corner Cornfield Trail to Cornfield	From the south edge of the North Woods, the view is south to the Cornfield and west to Nicodemus Heights.	No impacts	No impacts

View	Existing Conditions	Impacts of Alternative A: No Action	Impacts of Alternative B: Action Alternative
View C. 360-degree view from Miller Grassland	An elevated rise south of Tour Stop 4 provides views to the Cornfield, across the Miller grassland, and to the west. This view is negatively impacted by electric lines along Dunker Church Road (historic Hagerstown Pike).	No impacts	<p>Alternative B could relocate the electric lines underground along Dunker Church Road (historic Hagerstown Pike) or relocate them to along MD Route 65. Buried electric lines along Dunker Church Road (historic Hagerstown Pike) would require above-ground utility boxes and/or transformers. These modern intrusions may be less noticeable than the current overhead electric lines within the view, but would continue to negatively impact the view.</p> <p>Relocated overhead electric lines along MD Route 65 may or may not be visible from the Miller grassland. Visibility may be dependent on the time of year and leaf cover in forested areas along MD Route 65. The view west from the Miller grassland would be rehabilitated if the electric lines are buried along MD Route 65.</p>

View	Existing Conditions	Impacts of Alternative A: No Action	Impacts of Alternative B: Action Alternative
View D. View from Hauser’s Ridge	From the Hauser farmstead is a view in a generally eastern direction towards the West Woods. Views from Hauser Ridge to the West Woods would have been more open during the battle than they are today.	No impacts	<p>Alternative B would convert existing hayfields and cropland within this view to grasslands and/or meadows. However, this change in vegetation would retain the open character within the view.</p> <p>Alternative B could relocate the existing electric lines along Dunker Church Road (historic Hagerstown Pike) to along MD Route 65. Relocated overhead electric lines along Sharpsburg Pike may or may not be visible from within this view. Buried electric lines along MD Route 65 would require above-ground utility boxes and/or transformers. Visibility of these modern intrusions from within this view may be dependent on the time of year, leaf cover in forested areas along MD Route 65, and the grassland mowing schedule.</p>

View	Existing Conditions	Impacts of Alternative A: No Action	Impacts of Alternative B: Action Alternative
View E. 360-degree view from Visitor Center	The visitor center provides panoramic views of the Battlefield. The hill behind the visitor center gives a nearly 360-degree view overlooking much of the battlefield landscape: Sunken Road, Mumma Farm, the Cornfield, and Antietam Creek. Beyond the boundaries of the Battlefield, views are towards South Mountain on the east, the river valley of Harpers Ferry on the south, and the town of Sharpsburg to the southwest. The view to Sunken Road is slightly obscured by vegetation, and the view west is also slightly obscured by vegetation. The view to the northeast is impacted by the electrical lines along Smoketown Road and Mumma Farm Lane. The long range views from the visitor center to South Mountain and across farm fields have changed little, although threatened by expansion of suburban development into the area.	In the short term, Alternative A would not change the existing view southeast towards Sunken Road and the existing view west. Over the long term, the continued growth of vegetation that is currently slightly obscuring the views would further obscure these views.	Alternative B would convert existing croplands within the view towards Sunken Road and to the east to hayfields. However, this change in vegetation would retain the open character within the view. Alternative B would also rehabilitate the views toward Sunken Road through woody vegetation clearance and rehabilitating views to the north by placing overhead utility lines along Smoketown Road and Mumma Farm Lane underground.
View F. View from Hagerstown Pike and rises to the east to Dunker Church	The view to the Dunker Church from Dunker Church Road (historic Hagerstown Pike) and the rise to the east is an historic view.	No impacts	No impacts

View	Existing Conditions	Impacts of Alternative A: No Action	Impacts of Alternative B: Action Alternative
View G. View from Sunken Road	Views to and from Sunken Road are an important feature of the landscape. The roadway is maintained in low grasses which preserve the view along road corridor. From the roadway, views are enclosed by the steep banks. The view is partially obstructed by vegetation at the intersection of Sunken Road and Roulette Lane.	In the short term, Alternative A would not change the existing view from the roadway towards the intersection of Sunken Road and Roulette Lane. Over the long term, the continued growth of vegetation that is currently partially obstructing this view would further obstruct the view.	Alternative B would convert existing croplands within this view to hayfields. However, this change in vegetation would retain the open character within the view. Obstructive successional vegetation near the intersection of Sunken Road and Roulette Lane would also be cleared.
View H. View to/from the Observation Tower	Throughout much of the battlefield, the view to the Observation Tower is prominent. From the Observation Tower there is a 360-degree view of the entire landscape. This view is negatively impacted by adjacent development including housing, cell and water towers.	No impacts	Alternative B would convert existing cropland to the north and east of the Observation Tower to hayfield. Existing hayfields farther east would be converted to grasslands and/or meadows. However, this change in vegetation would retain the open character within the view. Existing pasture, hayfields, grasslands, and meadows even farther east and along Antietam Creek would be converted to forested land. However, this change in vegetation would be minimally noticed due to its location in the background of the view from the Observation Tower and against other existing forested areas in the view's background.

View	Existing Conditions	Impacts of Alternative A: No Action	Impacts of Alternative B: Action Alternative
View I. View from behind Observation Tower	The view from behind the Observation Tower, at ground level, provides a 360-degree view of the landscape.	No impacts	Alternative B would convert existing cropland to the east of the Observation Tower to pasture. Existing hayfield farther east of the Observation Tower would be converted to grasslands and/or meadows. However, this change in vegetation would retain the open character within the view.
View J. View from Parks Farmstead to Middle Bridge	The view to the Middle Bridge from Parks Farmstead was open during the Battle of Antietam. Today this view is enclosed by vegetation.	No impacts	Alternative B would convert existing hayfield in the view’s foreground to grasslands and/or meadows. However, this change in vegetation would retain the same open character as hayfield.
View K. View from Tidball Battery Position	This view is across the Newcomer farm from an elevated hill, looking west.	No impacts	Alternative B would convert existing hayfield within this view to grasslands and/or meadows. However, this change in vegetation would retain the open character within the view.
View L. View from Pry Farmstead	At the Pry Farmstead, there is a view from the farmhouse looking west towards the battlefield. Vegetation is overgrown in portions of this historic view. From the Pry Farmstead, the battlefield is still visible but is encroached upon by forest.	In the short term, Alternative A would not change the existing view. Over the long term, the continued growth of the forest that is currently encroaching this view would further encroach on the view.	Alternative B would thin vegetation on the slope to the west of the Pry Farmstead to open up, and thus rehabilitate the view.

View	Existing Conditions	Impacts of Alternative A: No Action	Impacts of Alternative B: Action Alternative
View M. View from National Cemetery	The view from the National Cemetery to the south is towards the battlefield and valley of Antietam Creek and South Mountain beyond. This view is partially obscured by a row of trees outside the southern cemetery wall.	In the short term, Alternative A would not change the existing view. Over the long term, the continued growth of the row of trees that is currently partially obscuring this view would further obscure the view.	Alternative B would thin trees outside the southern cemetery wall to improve the view.
View N. View from Hawkins' Zouaves Monument	From the Hawkins' Zouaves Monument, there is a view towards the National Cemetery and west towards the valley of Antietam Creek. This latter view is impacted by adjacent residential development.	No impacts	No impacts
View O. View from Tour Stop 10; from Branch Ave to Otto Farm	At the southern end of the battlefield along Branch Avenue, views to the east overlook the Otto Farm including native meadow plantings and the Final Attack Trail, and mountains beyond Antietam Creek. Views to the Otto Farmstead are obscured by vegetation.	No impacts	Alternative B would thin trees between Tour Stop 10 and the Otto Farm to improve views to the Otto Farm.
View P. View from Final Attack Trail	Views from the Final Attack Trail are from an elevated position above Antietam Creek, and open due to the native grassland vegetation. The Antietam Creek drainage is visible and the mountains beyond.	No impacts	Alternative B would convert existing cropland in the foreground of this view to grasslands and/or meadows. However, this change in vegetation would retain the same open character as cropland.

View	Existing Conditions	Impacts of Alternative A: No Action	Impacts of Alternative B: Action Alternative
View Q. View to Burnside Bridge	At Burnside Bridge, there is a view of the bridge from the Mission 66 overlook and along the Burnside Bridge Road.	No impacts	Alternative B would convert existing hayfields on the opposite side of the Burnside Bridge and Antietam Creek to grasslands and/or meadow. However, this change in vegetation would retain the same open character as hayfields.
View R. View from hill on east side of Burnside Bridge	Views on the east side of the bridge were historically open during the battle but vegetation partially obscures the view today.	In the short term, Alternative A would not change the existing view. Over the long term, the continued growth of vegetation that is currently partially obscuring this view would further obscure the view.	Alternative B would convert existing hayfields within this view to grasslands and/or meadows. However, this change in vegetation would retain the same open character as hayfields. Obstructive successional vegetation would be cleared.

CONSULTATION AND COORDINATION

The NPS provided an opportunity for the public to comment on the proposed action during the NEPA process. Consultation and coordination with federal and state agencies and other interested parties was also conducted to refine the alternatives and identify issues and/or concerns related to park resources. This section provides a brief summary of the public involvement and agency consultation and coordination that occurred during planning.

PUBLIC INVOLVEMENT

As part of the NEPA process and to comply with the requirements of Section 106 of the NHPA, the NPS involved the public in project scoping by holding a 30-day public comment period from October 21, 2021 to November 21, 2021. A virtual public meeting was also held on October 21, 2021 using the Microsoft Teams platform. The scoping period and virtual meeting were announced by sending an email blast to agencies, stakeholders, and other potentially interested parties from a mailing list established for the project. The presentation used during the virtual public meeting and a recording of the meeting are available at <https://parkplanning.nps.gov/document.cfm?parkID=173&projectID=104934&documentID=115828>.

During the public scoping period, comments received covered a wide range of topics, summarized below:

- Support for the proposed project
- Ideas for interpretation
- Sustainable agricultural management practices
- Streambank stabilization and water quality
- Climate change impacts
- The Battlefield's lease management practices
- More detailed information about the proposed project
- Concerns about the treatment of vegetation
- Viewshed management
- Inclusion of non-fee areas within the Battlefield's legislative boundary in the Plan

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

Pursuant to Section 106 of the NHPA and its implementing regulations (36 CFR Part 800) "Protection of Historic Properties," the NPS initiated consultation with the Maryland Historical Trust (MHT) in a letter dated November 15, 2021. The letter briefly described the project, defined an APE, and identified historic properties within the APE. The NPS held one Section 106 consulting parties meetings, which occurred on April 26, 2022.

The NPS will submit an Assessment of Effects (AOE) to the MHT for review in conjunction with this EA. The AOE assesses whether the proposed undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Based on the AOE, it was determined that the proposed undertaking would have no adverse effect on historic properties. The proposed undertaking could result in an adverse effect on archeological resources. The NPS shall complete additional Section 106 compliance, including

consultation with the MHT and tribes, submitted as a separate project (or separate projects) as the precise locations of each element of the Plan are developed and designed.

Tribal Consultation

Consultation initiation letters were sent to the Accohannok Indian Tribe, Piscataway Conoy Tribe, Piscataway Indian Nation, Cedarville Band of Piscataway Conoy (Piscataway Conoy Tribe), Pamunkey Indian Tribe, Upper Mattaponi Indian Tribe, Rappahannock Tribe, Nansemond Indian Nation, Chickahominy Indian Tribe, Chickahominy Tribe Eastern Division, Monacan Indian Nation, Catawba Indian Nation, Delaware Nation, Absentee Shawnee Tribe of Indians of Oklahoma, and Shawnee Tribe on November 3, 2021. No comments were received from any of the Tribes. The NPS will submit the AOE to the tribes for review in conjunction with this EA.

SECTION 7 OF THE ENDANGERED SPECIES ACT

An official species list was obtained using the USFWS Information for Planning and Consultation (IPaC) System on March 25, 2022, that identified the potential for the federally threatened northern long-eared bat (*Myotis septentrionalis*) and the federally endangered Indiana bat (*Myotis sodalis*) to be present at the Battlefield. Prior to and during the implementation period of the proposed project, the NPS will complete Section 7 consultation with the USFWS and Maryland Department of Natural Resources Wildlife and Heritage Service (DNR) to identify activities included in the proposed action that would have the potential to affect federally and state listed threatened and endangered species. The official species list obtained through the IPaC System is included in Appendix B.

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In Reply Refer To:

March 25, 2022

Project Code: 2022-0023982

Project Name: Antietam National Battlefield Landscape Management Plan

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of

this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive

Annapolis, MD 21401-7307

(410) 573-4599

Project Summary

Project Code: 2022-0023982

Event Code: None

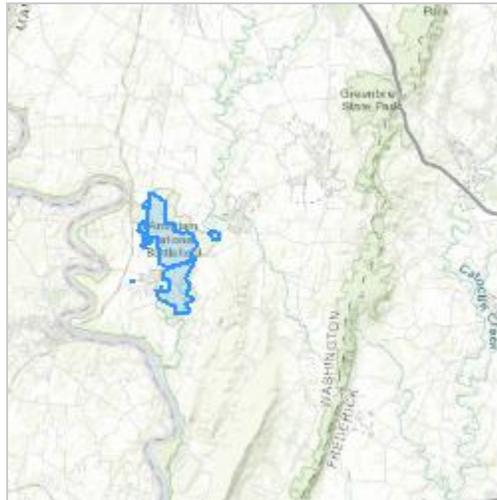
Project Name: Antietam National Battlefield Landscape Management Plan

Project Type: Management Plans Land Management/Restoration

Project Description: The National Park Service (NPS) is developing a Landscape Management Plan (Plan) for Antietam National Battlefield in Sharpsburg, Maryland. The purpose of this Plan is to develop comprehensive, sustainable land use strategies that will preserve significant landscape elements and integrate natural and cultural resource values. The Plan will define the framework for the treatment of the battlefield and commemorative landscape and describe specific guidelines and tasks aimed to maintain and enhance its historic character. The project area is the 1,991 acres of the battlefield that are owned by the federal government. The project area includes historic farmsteads, agricultural fields, forests, trails, a visitor center, a cemetery, commemorative monuments, and historic structures.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@39.477871300000004,-77.74366450184505,14z>



Counties: Washington County, Maryland

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> Projects with a federal nexus that have tree clearing = to or > 15 acres: 1. REQUEST A SPECIES LIST 2. NEXT STEP: EVALUATE DETERMINATION KEYS 3. SELECT EVALUATE under the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule Consistency key Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> The monarch is a candidate species and not yet listed or proposed for listing. There are generally no section 7 requirements for candidate species (FAQ found here: https://www.fws.gov/savethemonarch/FAQ-Section7.html). Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT [HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML](https://www.fws.gov/wetlands/data/mapper.html) OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPaC User Contact Information

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Email: lauren.tuttle@aecom.com
Phone: 2027720668

Lead Agency Contact Information

Lead Agency: National Park Service
