

Chapter 2 – Alternatives

2.1 Development of Alternatives

This section describes and discusses the no action and action alternatives explored in the Environmental Assessment (EA). The EA presents two alternatives for the future management of Wilson's Creek National Battlefield.

Alternative 1 (No Action): Alternative 1 preserves existing conditions and includes CLR recommendations implemented since 2004. There is continuation of current management strategies.

Alternative 2 (Proposed Action): This alternative implements remaining CLR treatment recommendations and includes a program for management of the white-tail deer population, expanded interpretive trails, waysides, cannons, viewsheds, and contemplative nodes, and vegetation management strategies based on the *Vegetation Management Implementation Plan* (2014) and interpretive programs indicated in the *Long Range Interpretive Plan* (2005).

The planning team relied on the park's previous planning documents for guidance in developing the alternatives. Combined, these documents provide Wilson's Creek National Battlefield with a vision and clear direction for the protection of the park's cultural landscape in order to sustain long-term management, interpretation, and preservation of overall park character, with priorities on natural and cultural resource conditions and visitor use and experience.

Public input received during scoping was important in the development of the alternatives. The public scoping process helped the planning team understand the public's values and preferences regarding visitor experiences and concerns, issues and suggestions related to recreational use, trail alignment and conditions, and deer management.

During alternative development, it was determined that the purpose and need for the plan could be met with a single action alternative and that other alternatives were neither feasible nor necessary. Identification of a preferred alternative is within the discretion of the NPS. The

1 recommended preferred alternative is Alternative 2 because it would best address and fulfill the
2 purpose and need of the project.

3 **2.1.1 Alternative 1 (No Action Alternative):**

4 **Preserve existing conditions and continue current management strategies (Map 2-1)**

5 The no-action alternative focuses on preservation of the existing character of Wilson's Creek
6 National Battlefield landscape and its current interpretation. Within this alternative, there would
7 be no changes to the facilities that currently accommodate visitor access and interpretation, park
8 administration, and facility management. Proposed changes already approved, such as the
9 addition of new wayside exhibits at Bloody Hill, would be permitted to proceed. The visitor
10 center would continue to serve as the primary means for visitor contact and orientation. The
11 entrance drive, associated parking area, and tour road would remain the primary vehicular access
12 route for visitors to experience the park's resources. Visitors would continue to gain the majority
13 of their knowledge of the Battle of Wilson's Creek through experiencing the exhibits located
14 within the visitor center, wayside exhibits sited at tour road stops, and along pedestrian and
15 equestrian trails. The current picnic area would continue to support the visitor experience.
16 Equestrian use of designated trails would also continue. **(Map 2-2)**

17



Figure 2-1: The entrance drive, associated parking and the tour road would remain the primary visitor access route to experience park resources.



Figure 2-2: Parking for equestrian trailers would remain in the current location, southeast of the Ray house.

19 No provision would be made for additional parking beyond the current parking areas, including
20 the existing horse trailer parking areas. Existing landscape patterns of spatial organization

Environmental Assessment
for
**Wilson's Creek
National Battlefield**

Legend

- Site Boundary
- 10' Contour
- Road
- Wire Road Trace
- Trail
- Creek
- Fence
- Building
- Wayside Exhibit
- Wooded Area
- Easement
- Crop Exhibit
- Restored Prairie
- Viewshed

Notes:

1. Dimensions and locations are approximate, based on field observations and NPS-provided GIS data.

Sources:

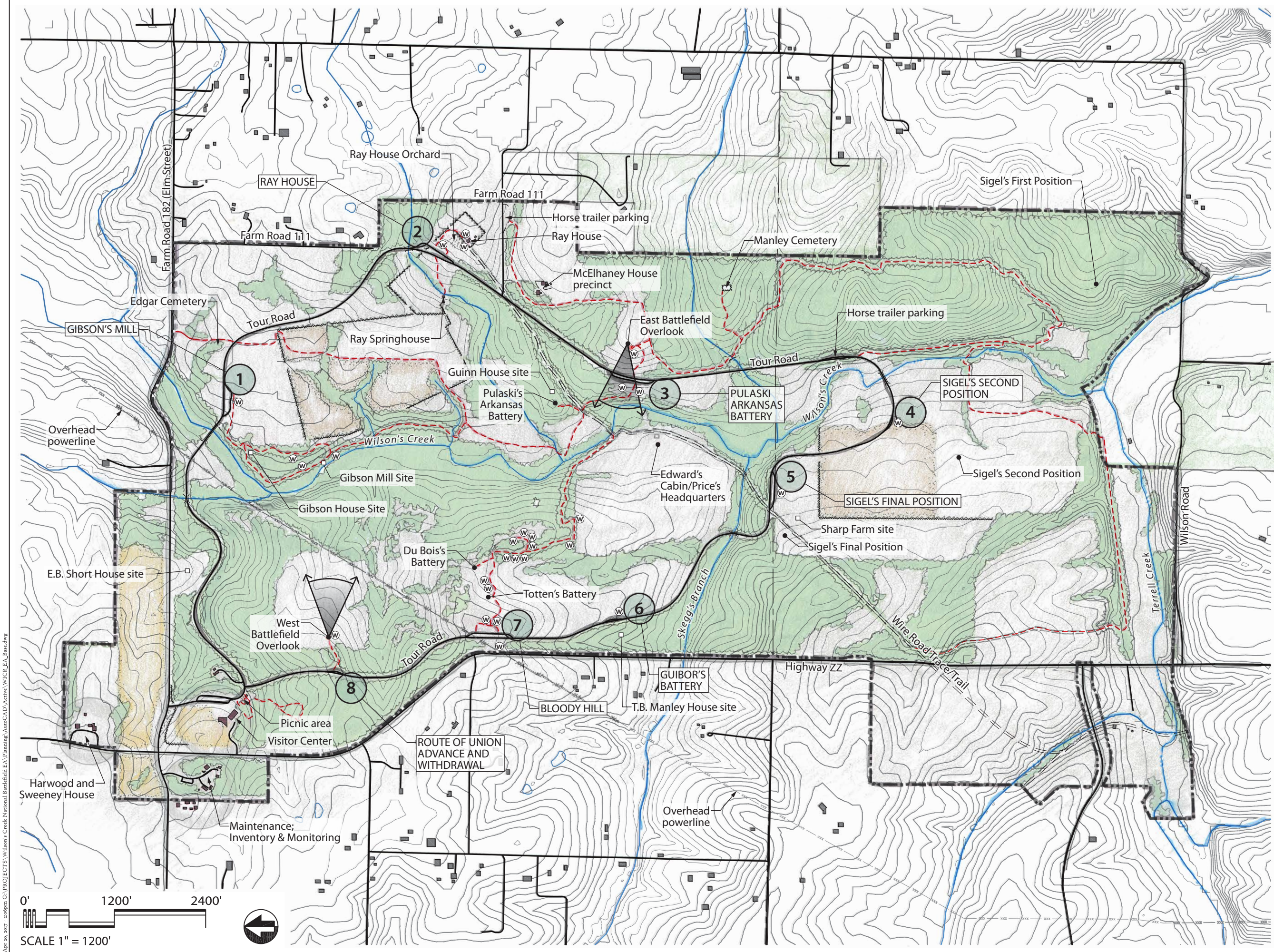
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Map 2-1.

Alternative 1

No Action Alternative:
Preserve Existing
Conditions and Continue
Current Management
Strategies (No Action)



Environmental Assessment
for
**Wilson's Creek
National Battlefield**

Legend

- Site Boundary
- 10' Contour
- Road
- Wire Road Trace
- Equestrian and Pedestrian Trail
- Pedestrian Trail only
- Creek
- Fence
- Building
- Wayside Exhibit
- Wooded Area
- Easement
- Crop Exhibit
- Restored Prairie
- Viewshed

Notes:

1. Dimensions and locations are approximate, based on field observations and NPS-provided GIS data.

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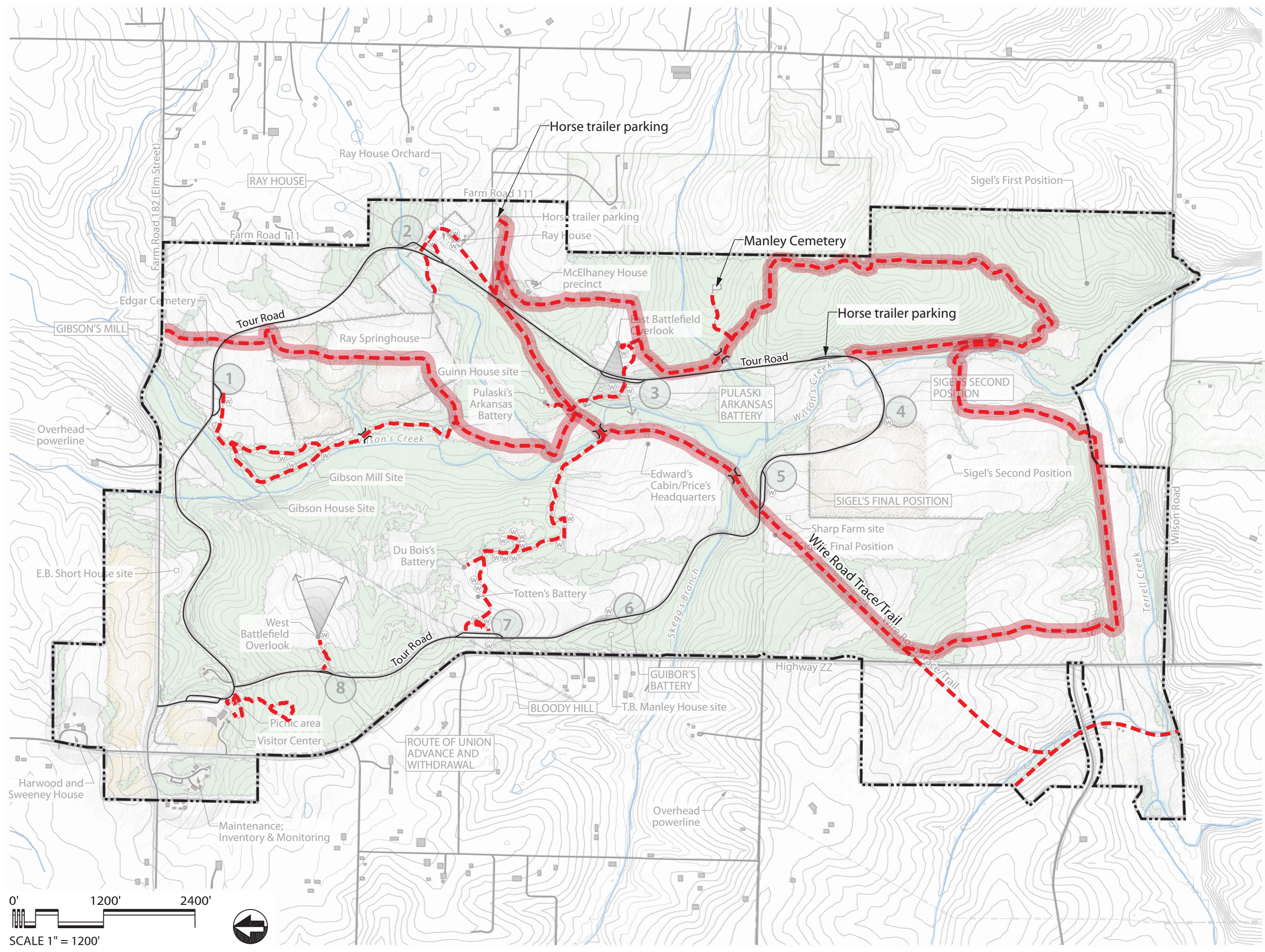
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Map 2-2.

Alternative 1 Trails

No Action Alternative:
Preserve Existing
Conditions and Continue
Current Management
Strategies (No Action)



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- 1 composed of clearings surrounded by generally wooded landscape, would be perpetuated. No
- 2 further vegetation removal and thinning would be undertaken, and current mowing and
- 3 vegetation management regimens would continue. Glade habitats would remain overrun with
- 4 Eastern redcedar trees, affecting the habitat and survival of the Missouri bladderpod unless



Figure 2-3: Existing battlefield overlook would continue to be managed for clear sight lines. No new historic viewsheds for interpretation would be cleared in this alternative.

- 15 recommendations are implemented as a park PMIS project per the *Vegetation Management*
- 16 *Implementation Plan* (2014). No change would be made to the interpretation of the battlefield
- 17 landscape. Views identified as important interpretive vistas, (east and west battlefield overlooks)
- 18 would continue to be managed for clear sight lines, while other views identified as important,
- 19 would not be cleared.

- 20 Proposed treatment of vegetation communities outlined in the CLR include: rehabilitation of
- 21 Manley Woods and glade communities; expansion of the trail system and adjustment of trails
- 22 subject to erosion; update of the park's wayside exhibits; and addition of more cannon to improve
- 23 marking of the battlefield would also not occur except for the stipulation above concerning the
- 24 recommendations of the *Vegetation Management Implementation Plan* (2014).

- 25 Major components of the alternative include:

- 1 • Maintenance of existing landcover character and patterns.
- 2 • Maintenance of existing interpretive programs and media.
- 3 • Maintenance of existing landscape features and systems.
- 4 • Continued protection of natural and cultural resources.
- 5 • Continued repair of deteriorated features and systems



Figure 2-4: Maintenance of existing landcover character and patterns would continue in this alternative.



Figure 2-5: Existing fence-lines, vegetation, and mown grasses would be maintained to preserve historic spatial patterns.

2.1.2 Alternative 2 (NPS Preferred Alternative):

Implementation of Remaining CLR Treatment Plan Recommendations, Proposed Deer Management Strategies, and the Interpretive Programs Indicated in the Long-Range Interpretive Plan (Map 2-3)

As part of an overall strategy for managing the cultural landscape, Alternative 2 (action alternative) recommends developing additional connections between interpretive programming and what is known about the landscape that comprised the park at the time of the battle. The strategy includes: increased vegetation management for more views; development of alternative trails; new cannon placement; additional wayside exhibit installation; and enhanced depiction of vernacular lifeways present at the time of the battle and layered with battle and troop movement information.

This alternative would complete the implementation of recommendations provided within the CLR (2004) based on an understanding of which recommendations have been implemented, which remain viable, and which require modifications to meet current park management goals and the guidance afforded in planning documents prepared after 2004.

for

Wilson's Creek
National Battlefield

Proposed Viewsheds

- v1. Orientation view from new Tour Stop 1
- v2. West Overlook Trail
- v3. Ray House to Ray Cornfield/Bloody Hill
- v4. Guibor's Battery to Totten's Battery Second Position
- v5. Sigel's First Position to Sharp Cornfield
- v6. Reid's Battery to Tour Stop 6
- v7. East Overlook to Bloody Hill
- v8. Tour Stop 6 to Edward's Cabin
- v9. Du Bois's Battery to Ray House
- v10. Pulaski's Battery to Du Bois's Battery/Ray Cornfield

Contemplative Nodes

- a. Manley Cemetery
- b. Tour Stop 4
- c. Tour Stop 6
- d. South Overlook
- e. Tour Stop 7
- f. Union Field Hospital Behind Bloody Hill
- g. Plummer's Crossing/Gibson's Mill
- h. Pulaski's Battery/Guinn Farm Orchard
- i. Wire Road Bridge
- j. Sigel's First Position

Legend

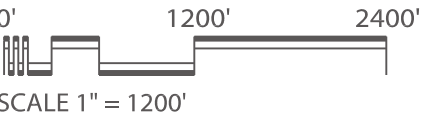
- Site Boundary
- 10' Contour
- Road
- Wire Road Trace
- Existing Trail
- Proposed Trail
- Remove Trail
- Proposed Bridge
- Creek
- Fence
- Building
- Existing Wayside Exhibit
- Proposed or Modified Wayside Exhibit
- Wooded Area
- Easement
- Maintain and Manage Crop Exhibits
- Maintain and Manage Restored Prairie
- Preserve and Protect Manley Woods
- Rehabilitate Glade Communities
- Maintain and Manage Bottomland Woods
- Maintain and Manage Mown/Cultivated Areas
- Establish 25-Foot Deer Management Zone
- Maintain and Manage Cultural Vegetation
- Viewshed (see list)
- Contemplative Node (see list)

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Map 2-3.

Alternative 2

Implementation of
Remaining CLR Treatment
Recommendations, Proposed
Deer Management
Strategies, and the
Interpretive Programs
Indicated in the LRIP



Rehabilitation of the landscape would also include contemplative and interpretive areas within the park that afford opportunities for the public to reflect on events of the battle. Several directed viewsheds will be cleared to support an understanding of the battlefield from contemplative and interpretive nodes and other key locations. The ongoing efforts conducted by the park to manage natural resources for diversity, conservation, and historic character will serve as a foundation for interpreting the battlefield.

Proposed trail extensions would be developed to provide connections with historic features not located along existing trails. Wayside exhibits would convey information about historic farmstead features at specific locations and viewpoints, providing a clear connection between the battle and the landscape.

The remainder of the park will be managed to promote savanna, open mixed forest, and native warm-season grassland communities, with the exception of the glades and Manley Woods. Manley Woods could be expanded in order to protect its integrity in light of ice storms, tornadoes, and other natural disturbances that impact trees. The topography around Manley Woods is rolling hills. Forest vegetation will help hold the soil in place with little maintenance, other than tracking potential exotic plants. The Wilson's Creek and Skegg's Branch stream corridors will be managed to promote water quality.

Action Items

Specific actions resulting from the implementation of this alternative include:

Land Acquisition/Assimilation

- Complete proposed land acquisitions and conservation easement establishment.
- Clear the parcel acquired to the southeast and integrate into savanna management practices.
- Establish a day-use/picnic area in the Double Spring parcel located west of Highway ZZ in the southwest corner of the park. Use it to develop a small parking area to accommodate visitors, and a modest picnic area. Plant trees to shade the picnic area on the site of an existing building foundation. Install wayside exhibits that explain the Civil War era use by both Union and Confederate soldiers and the nearby free flowing spring. Consider establishing a trail that extends under State Highway ZZ, passing under an

existing bridge that conveys Terrell Creek beneath the road corridor for pedestrian access (coordinate with State of Missouri Highway department).

- **Complete investigations.** Several important cultural and natural resource features may exist on the property that require documentation. The 1838 General Land Office maps indicate that there may have been five to seven springs on the property at one time. Also, the Wire Road passed through this property and should be located, as well as the Gwinn land.

Roads and Parking

- **Establish an equestrian parking area north of the visitor center.** The parking area will be accessed from the park entrance road. It is estimated that the parking area will encompass approximately 1 acre of land. It will be composed of an access road, trailer parking spaces, water bib, interpretive information board, and a trailhead that connects riders to the equestrian trail system. This project was identified in the *General Management Plan* (2003) as a park goal, and conveyed as a treatment recommendation in the CLR (2004). It replaces current use of the temporary horse trailer parking area located between the Ray house and McElhaney house. The relocation of the horse trailer parking area is intended to remove horse trailer traffic from the park tour road.
- **Rehabilitate the existing horse trailer parking area.** Once the new equestrian parking area is constructed, there is no further need for the existing temporary horse trailer parking facility. The existing parking area will be rehabilitated through removal of parking and establishment of native plant communities.

Pedestrian Trail System (Map 2-4)

- **Expand the existing pedestrian trail system.** Eleven new trail segments are proposed for the park to enhance the interpretive opportunities available for visitors. Trails are anticipated to be treated as back-country foot paths surfaced with hard-packed earth, minimally graded, and supported by limited rock work in specific problem areas. The layout of the trails will be designed and constructed to eliminate ongoing maintenance concerns. Trails in this diverse landscape usually take a form including width that is in

keeping with the setting. Trail widths will range from 4-8 feet or more (mown trails) over the battlefield landscape.

The proposed new trails include the following:

1. *Visitor Center to Bloody Hill via Short Farm.* This trail follows the Union advance from the opening shots of the battle until Gen. Lyon's advance is halted on Bloody Hill. Features include a trailhead at the visitor center parking area, waysides at the Short farm site, and a Union artillery position. The trail will branch to follow where Capt. Plummer's battalion was ordered to ford Wilson's Creek to protect Lyon's main forces from being flanked. The main trail will connect with the Union triage station behind Bloody Hill, as well as the main Bloody Hill interpretive trail. The trail would also intersect the proposed new Tour Road stop 1.
2. *Bloody Hill Trail to Gibson's Mill Crossing.* This trail is described in the Long-Range Interpretive Plan. This trail would branch from the Union advance trail to the point on Wilson's Creek where Capt. Plummer's battalion forded the creek near Gibson's Mill. A pedestrian footbridge across the creek as part of this trail.
3. *Gibson's Mill Crossing to Ray Cornfield/Springhouse.* This continues to follow Capt. Plummer's battalion's march towards their fight in Rays' cornfield, crossing the existing Ray cornfield trail. The trail connects with the existing Gibson's Mill trail.
4. *Tour Road stop 3 to Reid's Battery.* This is a spur trail that leads south from Tour Road stop 3 to the position of Reid's Fort Smith Battery. Two cannons and a wayside are proposed to be added here. The trail crosses the site of the town of Wilson's Creek, a post- Civil War community; a future wayside exhibit will tell that story.
5. *Extend Pulaski Battery Trail to Guinn Farm site* (also McCulloch's Headquarters). This trail represents an extension of the existing trail to reach the location. Cannon and wayside exhibits would be relocated to the more accurate battery location.
6. *Tour Road trailer siding to Sigel's First Position* (following clearing of the new parcels to east). Land that was the site of Sigel's First Position has been added to the park since 2004. It is recommended that the trailer parking at the curve of the

road should serve as a parking area/trailhead for a new trail to the position, which is anticipated to offer an exceptional view of the south end of the battlefield. Two cannons and a wayside would be placed here. A contemplative node is recommended for this location. Existing portions of the Manley trail would also be used to connect to Sigel's First Position.

7. *Edward's Cabin to Bledsoe's Battery*. From Edward's cabin, a trail would lead eastward to the plateau on the south slope of Bloody Hill. Bledsoe's Missouri State Guard Battery would be featured on the plateau with two cannons, wayside exhibits, and a contemplative node.

8. *Bledsoe's Battery to Tour Road stop 6 (Guibor's Battery)*. This trail is described in the Long-Range Interpretive Plan. The trail links Bledsoe's Battery and Tour Road stop 6 along the approximate position of the Confederate battle lines, and parallels the Bloody Hill trail along the Union battle lines.

9. *Confederate advance route to Bloody Hill* (two alternative routes). A trail between the two battle lines would interpret battle from the Confederate soldier's experience. One possible route connects Bledsoe's Battery to the Bloody Hill trail. Another extends from a point east of Tour Road stop 6 to Totten's Battery, or a point on Bloody Hill.

10. *Extend the West Battlefield Overlook Trail from Tour Road stop 8*. This spur trail would intersect the visitor center to Bloody Hill trail to provide a connection to the west battlefield overlook trail.

11. *Sigel's Advance Trail*. From Sigel's First Position, the visitor would return via the Manley trail to a point on the old railroad grade. The trail would follow the grade to Wilson's Creek. A bridge across the creek would be constructed utilizing the concrete railroad abutments and pillars. After crossing the creek, the trail would continue to follow the railroad grade, access the Sharp stubble field, link with Sigel's Second Position and conclude at Tour Road stop 5.

- **Trailhead parking:** The visitor center and Tour Road stops 1, 2, 3, 5 and 7 are best suited for trailhead parking due to the spaces available at these locations.

1 • **Construct new bridges or fords to convey trails across Wilson’s Creek and Skegg’s**
2 **Branch.** The proposed new trail segments require two crossings of Wilson’s Creek and
3 one of Skegg’s Branch. New footbridges would need to be built near Gibson’s Mill to
4 accommodate the Wilson’s Creek crossing associated with new trail segments 2 and 3
5 described above. A bridge crossing of Skegg’s Branch would facilitate the Wire Road
6 crossing near Tour Road stop 5. A footbridge crossing of Wilson’s Creek in the
7 southeastern corner of the park would support the establishment of the Sigel’s Advance
8 Trail.

9 • **Realign trail segments that are regularly subject to erosion.** Trail segments that are
10 steep and regularly subject to erosion are proposed for abandonment, with realignment of
11 necessary trails following more accommodating terrain. One of the segments proposed
12 for abandonment is the southern half of the Manley uplands trail between the access route
13 to Manley cemetery and the southern end. The southern end would remain in use as a way
14 to connect visitors to a new interpretive/contemplative node associated with Sigel’s First
15 Position. Additional segments proposed to be abandoned include the trail that extends
16 through the southeastern section of the Sharp stubblefield; the trail from the Wilson’s
17 Creek valley west of the Wire Road bridge leading toward the Lyon Marker; and the trail
18 that parallels State Highway ZZ in the southwestern corner of the park. For the trail
19 extending west from the Wire Road bridge, the new trail segment 7 described above
20 would serve as the replacement for this route. Surface materials of new trail segments are
21 anticipated to be hard-packed earth, rock edging, and water bars.

22 ***Equestrian Trail System (Map 2-4)***

23 • **Realign sections of the equestrian trail to address erosion concerns.** Segments of the
24 Manley Uplands trail are steep and subject to erosion. This project entails rerouting
25 equestrians from most of the Manley uplands trail, and establishing a new trail segment
26 that parallels the tour road to its west between Tour Road stop 3 and the existing trail east
27 of Tour Road stop 4. The trail as it currently extends through the Sharp stubblefield would
28 be removed due to steep and erodible slopes. A third segment of the trail that extends
29 south from the Wire road to the east of State Highway ZZ would be removed due to steep
30 and erodible slopes. Instead equestrians would be redirected to the Wire Road via a new
31 trail that cuts diagonally across the southwestern corner of the park, linking the trail south

of the stubblefield with the Wire Road. Associated with this realigned trail are two proposed new bridges or ford crossings.

- **Add new trail segment west of the Sharp crop fields. With the addition of two new trail segments.** Equestrian riders would be able to follow a loop in the southwestern corner of the park that encompasses the Wire Road, the proposed new segment extending diagonally across the landscape west of the Sharp stubblefield, and another proposed new trail connecting the Sharp Farm site with the diagonal trail by edging the Sharp cornfield to the west. A portion of this trail would coincide with the proposed Sigel's Advance Trail noted above. The width and surface of the trail would be designed to accommodate both pedestrian and equestrian uses. Equestrian trails also take the form that is in keeping with the setting. Equestrian trail widths will vary from 4-10 feet or more depending on the landscape setting within the battlefield.
- **Establish an equestrian trail between the proposed new parking area and existing equestrian trails.** This project was a treatment recommendation in the CLR (2004). The CLR suggested the use of the Manley Spur trail to connect equestrians with the existing equestrian trail through the Ray cornfield. The Manley Spur trail is no longer in use, however, and this route requires either a ford crossing of Wilson's Creek, which could be impassable during periods of high water, or a bridge passageway connected to Tour Road bridge #1. Alternately, equestrians could be connected to the existing trail system by traveling along the western edge of the park and following the proposed route of the new pedestrian trail to Bloody Hill, and other proposed routes leading to the Wire Road east of Guibor's Battery.

Interpretive Exhibits and Features

- **Establish a new Tour Road stop 1.** This stop is designed to serve as a battlefield orientation opportunity for visitors. This was recommended in the CLR (2004) treatment plan to be located near the beginning of the tour route, established in conjunction with a cleared viewshed toward the open field to the southeast.
- **Install 7 upright orientation exhibits at trailheads.** This is recommended in the *Long-Range Interpretive Plan* (2009) (LRIP). Disturbed area for exhibit structures is minimal and involves only installation of footings for the structure frame. Wayside exhibits are proposed for:

for

Wilson's Creek
National Battlefield

Legend

- Site Boundary
- 10' Contour
- Road
- Wire Road Trace
- Equestrian and Pedestrian Trail
- Pedestrian Trail only
- Remove Trail
- Proposed Bridge
- Creek
- Fence
- Building
- Existing Wayside Exhibit
- Proposed or Modified Wayside Exhibit
- Wooded Area
- Easement
- Maintain and Manage Crop Exhibits
- Maintain and Manage Restored Prairie
- Preserve and Protect Manley Woods
- Rehabilitate Glade Communities
- Maintain and Manage Bottomland Woods
- Maintain and Manage Mown/Cultivated Areas
- Establish 25-Foot Deer Management Zone
- Maintain and Manage Cultural Vegetation
- Viewshed (see list)
- Contemplative Node (see list)

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Map 2-4.

Alternative 2 Trails

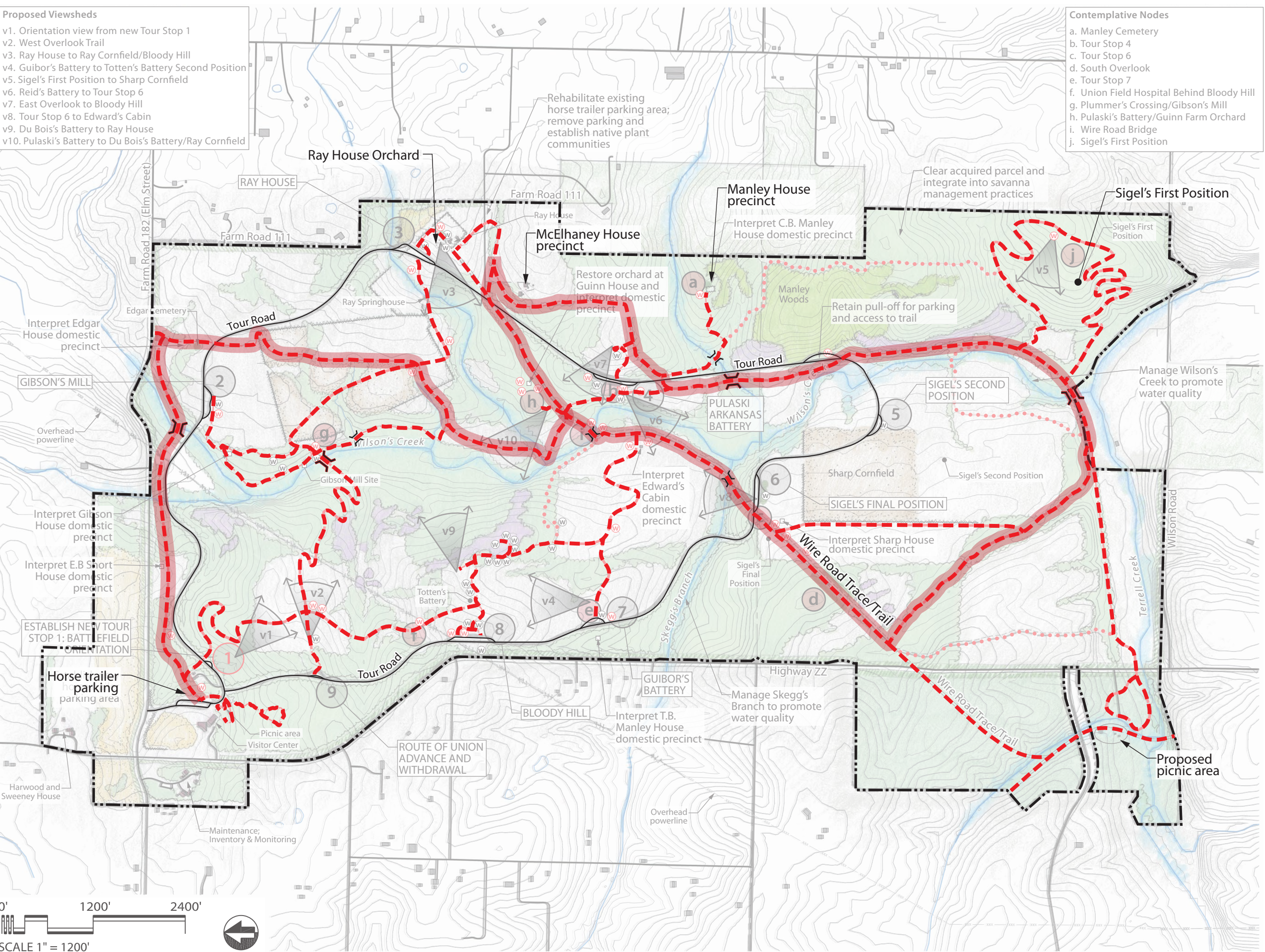
Implementation of Remaining CLR Treatment Recommendations, Proposed Deer Management Strategies, and the Interpretive Programs Indicated in the LRIP

Proposed Viewsheds

- v1. Orientation view from new Tour Stop 1
- v2. West Overlook Trail
- v3. Ray House to Ray Cornfield/Bloody Hill
- v4. Guibor's Battery to Totten's Battery Second Position
- v5. Sigel's First Position to Sharp Cornfield
- v6. Reid's Battery to Tour Stop 6
- v7. East Overlook to Bloody Hill
- v8. Tour Stop 6 to Edward's Cabin
- v9. Du Bois's Battery to Ray House
- v10. Pulaski's Battery to Du Bois's Battery/Ray Cornfield

Contemplative Nodes

- a. Manley Cemetery
- b. Tour Stop 4
- c. Tour Stop 6
- d. South Overlook
- e. Tour Stop 7
- f. Union Field Hospital Behind Bloody Hill
- g. Plummer's Crossing/Gibson's Mill
- h. Pulaski's Battery/Guinn Farm Orchard
- i. Wire Road Bridge
- j. Sigel's First Position



- 1 1. Visitor center to Bloody Hill trail to be located within the visitor center parking area
- 2 2. At Tour Road stop 1 for the Gibson's Mill/Plummer's Crossing trail
- 3 3. Tour Road stop 2 for the Ray Springhouse/Cornfield trail
- 4 4. Tour Road stop 3 at the East Overlook/Reid's Battery/Pulaski Battery trail
- 5 5. At the Edward's cabin
- 6 6. Tour Road stop 4 at the trail to Sigel's First Position
- 7 7. At Tour Road stop 6 at the Confederate Advance trail
- 8 • **Install 24 trail waysides.** Proposed wayside exhibits would interpret the following topics:
9 (several of these are intended for interpretation along proposed new trail segments):
- 10 1. Totten's first shots, near rock outcrop in front of visitor center
- 11 2. Short House site
- 12 3. Manley Cemetery
- 13 4. Plummer's Crossing at Wilson's Creek and the new footbridge
- 14 5. Town of Wilson Creek
- 15 6. Ray Cornfield, Union perspective
- 16 7. Ray Cornfield, Confederate perspective
- 17 8. McCulloch's Headquarters near the Guinn Farmstead
- 18 9. Guinn Farmstead and orchard exhibit
- 19 10. Quarry on Wire Road
- 20 11. History of the Wire Road and Iron Bridge
- 21 12. Camp life of the Southern soldier
- 22 13. Sharp farmhouse, community perspective, slavery
- 23 14. South overlook at Wire Road/tree line
- 24 15. Union field hospital site and treatment of those wounded on the battlefield

16. First contact by Lyon's Army/Cawthorn's delaying action
17. Trail intersection, Plummer's order to ford the creek
18. Union order of battle
19. "Medal of Honor" recipients
20. Union Army order of battle
21. Southern Army order of battle
22. Missouri State Guard/Sterling Price
23. Double springs/military use of Wire Road

Ground disturbance is minimal for the installation of the footings for the wayside interpretive exhibits.

- **Install 29 new cannons.** New cannons are recommended for the park to enhance interpretation. A total of 17 cannons are recommended for Union positions, and 11 for Confederate positions, while a new cannon interpretive exhibit is proposed for the Visitor Center environs. Cannon can be placed directly on the ground and will cause minimal land disturbance.

Cannons are proposed for the following locations:

Union Positions

1. Totten's First Position: Hilltop by visitor center
2. Totten's First Position: Hilltop by visitor center
3. Sokalski's First Position: North side of tour road between intersection and first bridge
4. Totten's Second Position: Bloody Hill trail
5. Totten's Second Position: Bloody Hill trail
6. Totten's Second Position: Bloody Hill trail
7. Totten's Second Position: Bloody Hill trail
8. Sokalski's Second Position: Bloody Hill trailhead

- 1 9. Sokalski's Second Position: Bloody Hill trailhead
- 2 10. DuBois' Battery: Trail spur, Bloody Hill trail
- 3 11. DuBois' Battery: Trail spur, Bloody Hill trail
- 4 12. Backof's First Position: Sigel's First Position, hilltop in southeast corner
- 5 13. Backof's First Position: Sigel's First Position, hill top in southeast corner
- 6 14. Backof's Second Position: West side of Sharp's stubblefield
- 7 15. Backof's Second Position: West side of Sharp's stubblefield
- 8 16. Backof's Third Position: Tour Road stop 5
- 9 17. Backof's Third Position: Tour Road stop 5
- 10 *Visitor center*
- 11 18. Visitor Center Exhibit: Visitor Center walkway
- 12 *Confederate Positions*
- 13 19. Reid's Battery: South end of field by Tour Road stop 3
- 14 20. Reid's Battery: South end of field by Tour Road stop 3
- 15 21. Bledsoe's Battery: Plateau west of Edward's Cabin
- 16 22. Bledsoe's Battery: Plateau west of Edward's Cabin
- 17 23. Bledsoe's Battery: Plateau west of Edward's Cabin
- 18 24. Guibor's Battery: Tour Road stop 6
- 19 25. Guibor's Battery: Tour Road stop 6
- 20 26. Guibor's Battery: Tour Road stop 6
- 21 27. Guibor's Battery: Tour Road stop 6
- 22 28. Pulaski Battery: Hilltop near Wire Road/stop 3 trail. This is an existing cannon that
- 23 would be moved northeast from its present location
- 24 29. Pulaski Battery: Hilltop near Wire Road/stop 3 trail. This is an existing cannon that
- 25 would be moved northeast from its present location.

- 1 • **Install 5 artillery waysides.** New wayside exhibits would be associated with several of the
2 new artillery positions. These include the following:
 - 3 1. Totten's First Position (visitor center)
 - 4 2. Reid's Fort Smith Battery (Tour Road stop 3)
 - 5 3. Sigel's/Backof's First Position
 - 6 4. Backof's Battery (Tour Road stop 5)
 - 7 5. Bledsoe's Battery (Confederate advance trail)
- 8 • **Install an orchard exhibit at the Guinn House site.** This project was included in the
9 2004 CLR treatment plan. The orchard would be similar in size, design, amount of ground
10 disturbance, and implementation to the orchard installed at the Ray house for interpretive
11 purposes. The orchard contained thirty trees of three heritage varieties. Trunk guards
12 were used to protect the trees from deer browse.
- 13 • **Interpret the domestic precincts of the Guinn, C.B. Manley, Sharp, Edwards, Gibson,**
14 **Short, T.B. Manley, and Edgar house sites.** The 2004 CLR includes treatment
15 recommendations for how to interpret former residential properties within the battlefield
16 landscape that entail the use of mow patterns to delineate fields, fencelines, and building
17 foundations. Planted features or simple posts could also be used to interpret missing
18 features to afford a vertical element within the landscape.
- 19 • **Establish contemplative/interpretive nodes at 10 locations.** The 2003 GMP indicates
20 the establishment of contemplative nodes at key locations on the battlefield as a goal for
21 the park. The 2004 CLR treatment plan suggested specific locations and treatments for
22 contemplative nodes. The 2009 Long-Range Interpretive Plan expanded on the concept to
23 include contemplative, orientation, and interpretive nodes. These spaces would feature
24 either one of the orientation signs noted above, or a cleared area with a bench, a cleared
25 viewshed, and a shade element. Contemplative nodes are to be sited away from the tour
26 road for quiet contemplation, and views to important battle event locations. Interpretive
27 nodes are often located in association with roads and tour road stops. Ground

disturbance for nodes would be approximately 400 square feet. Nodes are proposed for the following locations:

- Wire Road Bridge (contemplative)
- Manley Cemetery (contemplative)
- Plummer's Crossing /Gibson's Mill (contemplative)
- Pulaski Battery/Guinn Farm Orchard (contemplative)
- Tour Road Stop 3 (interpretive)
- Tour Road Stop 5 (interpretive)
- Tour Road Stop 6 (interpretive)
- South Overlook (contemplative)
- Union Field Hospital location behind Bloody Hill (contemplative)
- Sigel's First Position (contemplative)
- **Viewsheds.** Several key viewsheds are proposed to be established/maintained from visitor trails, tour road stops, and overlooks. Ten viewsheds are to be established/maintained. Clearing is addressed further as part of vegetation management below. The viewsheds are as follows:
 1. Orientation view from new Tour Road stop 1
 2. DuBois Battery to Ray House
 3. Pulaski Battery to DuBois/Ray cornfield
 4. East battlefield overlook to Bloody Hill
 5. Sigel's First to Sharp stubblefield
 6. Guibor's Battery to Totten's Battery Second Position
 7. Tour Road stop 5 to Edward's Cabin
 8. Reid's Battery to Tour Road stop 5
 9. Ray House to Ray cornfield/Bloody Hill

for

Wilson's Creek
National Battlefield

Proposed Viewsheds

- v1. Orientation view from new Tour Stop 1
- v2. West Overlook Trail
- v3. Ray House to Ray Cornfield/Bloody Hill
- v4. Guibor's Battery to Totten's Battery Second Position
- v5. Sigel's First Position to Sharp Cornfield
- v6. Reid's Battery to Tour Stop 6
- v7. East Overlook to Bloody Hill
- v8. Tour Stop 6 to Edward's Cabin
- v9. Du Bois's Battery to Ray House
- v10. Pulaski's Battery to Du Bois's Battery/Ray Cornfield

Contemplative Nodes

- a. Manley Cemetery
- b. Tour Stop 4
- c. Tour Stop 6
- d. South Overlook
- e. Tour Stop 7
- f. Union Field Hospital Behind Bloody Hill
- g. Plummer's Crossing/Gibson's Mill
- h. Pulaski's Battery/Guinn Farm Orchard
- i. Wire Road Bridge
- j. Sigel's First Position

Legend

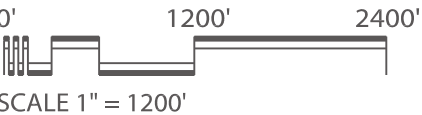
- Site Boundary
- 10' Contour
- Road
- Wire Road Trace
- Existing Trail
- Proposed Trail
- Remove Trail
- Proposed Bridge
- Creek
- Fence
- Building
- Existing Wayside Exhibit
- Proposed or Modified Wayside Exhibit
- Wooded Area
- Easement
- Maintain and Manage Crop Exhibits
- Maintain and Manage Restored Prairie
- Preserve and Protect Manley Woods
- Rehabilitate Glade Communities
- Maintain and Manage Bottomland Woods
- Maintain and Manage Mown/Cultivated Areas
- Establish 25-Foot Deer Management Zone
- Maintain and Manage Cultural Vegetation
- Viewshed (see list)
- Contemplative Node (see list)

DRAFT

Map 2-5.

Alternative 2
Vegetation and
Viewsheds

Implementation of
Remaining CLR Treatment
Recommendations, Proposed
Deer Management
Strategies, and the
Interpretive Programs
Indicated in the LRIP



10. View from West Battlefield Overlook Trail

Vegetation Management

- **Clear vegetation from interpreted viewsheds.** Trees that obstruct or interfere with the 10 viewshed locations noted above will be removed as part of this project. This project was included in the 2004 CLR treatment plan. *The Vegetation Management Implementation Plan* (2014) indicates the effort to re-establish critical viewsheds will include the following actions:
 1. Clear ≥ 5.2 ha (≥ 12.85 acres) of Eastern red cedar woodland and forest from areas visible from three or more different observation points. Fire should be considered in the implementation of viewshed opening recommendations. (Viewsheds 1, 2)
 2. Thin canopy cover of ≥ 35.9 ha (≥ 88.71 acres) of upland deciduous woodland and forest from areas visible from four or more different observation points. Options for thinning include fire and cutting.
 3. Clear ≥ 10.1 ha (≥ 24.96 acres) of Eastern red cedar woodland and forest from areas visible from one or two different observation points.
 4. Thin canopy cover of ≥ 27.6 ha (≥ 68.20 acres) of bottomland deciduous woodland and forest. Options for thinning include fire and cutting. (Viewsheds 8,6)
 5. Thin canopy cover of ≥ 92.9 ha (≥ 229.56 acres) of the remaining upland deciduous woodland and forest where views to critical elements of the battlefield would be improved. Options for thinning include fire and cutting. (Viewsheds 5,3,9,7)
 6. Existing viewsheds 4 (east battlefield overlook to Bloody Hill) and 10 (view from west battlefield overlook trail) will be managed by selected tree removal for retention of broad viewsheds to the landscape beyond. Existing non-exotic species will remain on the fringes of the viewshed.
 7. Maintain open viewsheds with prescribed burns
 8. Invasive species control treatments will be addressed partly in the *Heartland Invasive Plant Management Plan and Environmental Assessment*. However, it is imperative that a well-developed invasive species control plan specific to Wilson's Creek National Battlefield be an integral part of vegetation management within alternative 2.

- 1 • **Install screen buffer plantings along the park boundary, around water treatment**
2 **plant and proposed equestrian parking area.** Portions of the park boundary occur in
3 close proximity to busy roads. This project entails the establishment or maintenance of
4 screen buffer plantings around the water treatment plant and parking areas between
5 visitor use areas. The buffers proposed in the action alternative have been amended to
6 reflect the addition of land for equestrian parking, and to address deer management
7 recommendations.
- 8 • **Establish a 25-foot deer management zone between the park boundary and adjacent**
9 **roads.** A 25-foot-wide zone should be maintained through mowing between the edge of
10 the woodline and the park boundary fence along Elm Street (Farm Road 182) and
11 Highway ZZ. The park will maintain a 25-foot-wide, low-vegetation area or “clear zone”.
12 This zone extends inside the park boundary from the road to the existing forest,
13 woodland, or established buffer edge. This clear zone is intended to increase the visibility
14 of deer to passing motorists. Establishing the clear zone will entail removal of trees and
15 other woody growth, and maintenance through regular mowing. Planting may consist of
16 low native warm season grass, particularly buffalograss (*Buchloe dactyloides*), in the buffer
17 strip. It grows to a height of approximately 6 inches so mowing regime is reduced. Another
18 alternative is to plant relatively short forbs like milkweed that is the obligate food of
19 monarch butterflies.
- 20 • **Rehabilitate glade communities.** Glades are rare xeric habitats where bedrock is
21 exposed on the surface and soils are very thin. They are typically treeless openings that
22 can support the Missouri bladderpod (*Lesquerella filiformis*). The glades require
23 prescribed fire to prevent becoming overgrown by Eastern red cedar trees. Several trees
24 were mechanically removed in 2004 after the CLR was completed, but efforts to remove
25 cedar trees have since diminished. Measurable objectives for managing glade communities
26 are indicated in the Fire Management Plan.¹ More specific actions outlined in the
27 *Vegetation Management Implementation Plan* (2014) are as follows:
28 1. Clear ≥1.6 ha (≥3.95 acres) of thin-soiled Eastern red cedar woodland from Bloody
29 Hill glade and 1.2 ha (≥2.96 acres) from North Bloody Hill glade. Fire should be

¹ Fire Management Plan, 1-9.

- considered in the implementation of viewshed opening recommendations.
- Remove additional woody debris with a prescribed burn in two to five years.
2. Clear ≥ 1.0 ha (≥ 2.47 acres) of thin-soiled Eastern red cedar woodland from Walnut glade and 0.4 ha of Eastern red cedar woodland and forest from Wire Road glade. Remove woody debris with a prescribed burn in two to five years.
3. Clear ≥ 4.2 ha (≥ 10.38 acres) of thin-soiled Eastern red cedar woodland from Manley glade. Remove woody debris with a prescribed burn in two to five years.
4. Thin canopy cover of ≥ 3.5 ha (≥ 8.65 acres) of upland deciduous woodland and forest on Bloody Hill glade and ≥ 3.4 ha (≥ 8.40 acres) on North Bloody Hill glade.
5. Thin canopy cover of ≥ 2.6 ha (≥ 6.42 acres) of upland deciduous woodland and forest on Wire Road glade and ≥ 0.9 ha (≥ 2.22 acres) on Walnut glade. Also, thin canopy cover of ≥ 0.6 ha (≥ 1.48 acres) of bottomland deciduous woodland and forest on Manley glade and < 0.1 ha (≥ 0.25 acres) on Terrell Creek glade.
6. Thin canopy cover of ≥ 3.2 ha (≥ 7.91 acres) of upland deciduous woodland and forest on Manley glade.
7. Maintain glade communities with prescribed burns. Work with the U.S. Fish and Wildlife Service to address the specific needs of the endangered Missouri bladderpod in terms of the season in which to burn and the frequency of burning.
- **Rehabilitate savanna and open mixed forest communities.** Specific actions for managing current areas of open mixed forest to promote savanna are in the *Vegetation Management Implementation Plan* (2014) as follows:
 1. Maintain recently opened, open, and/or thinned woodlands with prescribed burns, mowing, and/or chemical treatments. Burn, mow, and/or use chemical treatments to promote native grasses and forbs. Areas infested with invasive species that may be difficult to manage could be treated through the limited use of grazing by goats.
 2. Assess all open and thinned areas for the quality of the native herbaceous vegetation present, and other areas lacking an acceptable native herbaceous vegetation component.

3. Convert ≥ 77 ha of non-native ruderal grassland to native herbaceous vegetation.

Haying may be used to manage both new native restorations and cool season areas like fescue fields.

This approach is also recommended for the parcels that have been added to the park since 2004, with the exception of the General Sweeny's Museum parcel.

- **Cultural vegetation.** Cultural vegetation, such as the Osage orange hedgerow, the groves of trees associated with the Edgar and Manley cemeteries, and the sugar maple trees near Tour Road stop 6, should continue to be retained and protected as indicated in the 2004 CLR.

- **Manley Woods.** The CLR (2004) recommends preservation and protection of the Manley Woods community. A series of weather disturbance events created a more heterogeneous community in Manley Woods, especially with respect to the overstory, fuel loads, and ground cover structure. Previous management goals emphasized creating a savannah physiognomy (National Park service 2004) and based on mean canopy closure, Manley Woods is very close to achieving that goal (savannah $< 30\%$ tree cover; Nelson 2005). However, woodland plants rather than grassland plants dominated the herbaceous community. Although the herbaceous community experienced change, few notable invasive species were observed.² Manley Woods will need to be continually monitored and managed.

Infrastructure

- **Relocate the high-tension electrical lines underground or outside of the park.** This recommendation was included in the CLR (2004). Since the CLR was completed, the existing line has been upgraded. Relocation of the line outside of the park is not likely to occur due to the orientation of the line and the cost and relocation alternatives. Placing the line underground would require extensive archeological investigations and consideration of sensitive natural resources in that zone. It remains an option, but is a very

² James, Devin and Sherry A. Leis, *Effects of Multiple Intense Disturbances at Manley Woods, Wilson's Creek National Battlefield*, Heartland Inventory and Monitoring Network, Natural Resource Protection Program, U.S. Department of the Interior, National Park Service, p 20.

low priority for park funding, as costs may be prohibitive. Mitigation would also be required.

Deer Management

- **Institute a program that reduces deer populations within the park.** Over abundant white-tailed deer would be reduced at the battlefield through direct lethal reduction using fire arms or archery equipment. NPS would manage the reduction carried out by qualified federal employees or authorized agents. Authorized agents may include, but are not limited to:

- Agency and tribal personnel or contractors: NPS will use only professional sharpshooters or NPS staff for the actual shooting in cull operations;
- Private contractors: Contractors are required to have appropriate skills and proficiencies in the use of firearms or archery equipment;
- Public volunteers: Would be supervised and managed in the field by NPS personnel
- State partners or nonprofit conservation partners: Would need to demonstrate appropriate proficiency skills and abilities, depending on their intended involvement. They would also be supervised and managed in the field by NPS personnel during deer management activity.

Actions necessary to facilitate sharp shooting may include setting up bait stations, locating deer, sharpshooting, and processing and disposition of deer meat and carcasses. The following stipulations will be required to ensure that deer reduction activities proceed in a safe controlled manner:

- Weapons appropriate to the location and shooting situation would be used from close range in a controlled environment. Every effort would be made to kill the animals as humanely as possible.
- Activities would comply with all federal laws particularly those administered by the Bureau of Alcohol, Tobacco, and Firearms.
- Sharpshooting would occur during the day or night as necessary to increase efficiency and effectiveness of culling operations. Operations would occur during the late fall and winter months when deer are more visible and less visitors are in the battlefield.

- Operations will be designed to minimize the overall impact on visitor experience and access to the battlefield.
- Deer management exhibits would be displayed at the visitor center, and information would be posted on the battlefield's website to inform the public about deer management actions.
- Visitor access would be limited as necessary while reductions were taking place and NPS rangers would patrol public areas to ensure compliance with area closures and public safety measures.
- Sharpshooting would not occur near occupied buildings or congested areas. Training would include the use of safety measures to protect both visitors and NPS employees. If more than one shooting location is used, these areas would be adequately separated to ensure public and participant safety.
- Bait stations could be used to attract deer to safe removal locations and would consist of small grains, apples, hay, or other food attractants placed on the ground. The stations would be placed in an area away from public use, to maximize the efficiency and safety of the reduction program. The amount of bait placed in any one location could be in the range of 20 to 100 pounds, depending on the bait used and the number of deer in the immediate area. Unconsumed bait will be removed from affected areas once culling operations are completed.

Encouragement of Deer Management Outside the Battlefield

Hunting occurs outside the Battlefield in many areas so deer management outside the battlefield would continue to be encouraged to make deer management efforts within the battlefield more effective. This would be done through cooperative efforts with other management agencies specifically the state of Missouri through the Missouri Department of Conservation.

Deer Meat Donation

Meat derived from culled deer will be made available for donation. In consultation with the NPS Office of Public Health an operational plan for maintaining as much venison as possible for public donation will be created. Recipients may include food banks in Missouri, Sportsman's or other non-profit groups that accept game meat to distribute to appropriate third parties, or the State of Missouri. Several non-profit sportsmen or conservation groups in Missouri may be available to assist in defraying costs associated

with donation. While Chronic Wasting Disease has not been detected at the WICR, when donating meat for public consumption through a food bank or other cooperator, NPS will follow the guidance found in *Elk and Deer Meat from Areas Affected by Chronic Wasting Disease: A Guide to Donation for Human Consumption* (2006).

Water Resources

- **Restore Wilson's Creek watershed.** The 2004 CLR recommends that the park actively address stormwater management on site. Goals for stormwater management are to increase direct infiltration of stormwater flow into the ground for recharge and to reduce erosion by establishing riparian buffers to diminish the flow of silt into streams, and establishing filter strips along roads and parking areas that similarly slow and detain stormwater flow and increase infiltration into the ground. The *Vegetation Management Implementation Plan* (2014) indicates the park has identified this as a project to be pursued in the future.
- **Establish riparian buffers or forests along stream corridors.** Riparian buffers are bands of trees, shrubs, and grasses along water courses that detain and slow water moving overland toward the water course. Riparian buffers exist to a degree along Wilson's Creek. Where they do not currently exist, they can be established by diminishing mowing and allowing woody plants and grasses to occupy the banks of the stream. Reconstruction of riparian forests will accomplish several goals of critical habitat, unique community-type establishment, stream bank (erosion control), and water quality enhancement, such as sedimentation control and cooler water temperatures for fish spawning and survival. The exception would be where directed views need to be maintained through clearing. In these locations, mechanical removal of woody trees and shrubs is required. Viewsheds 6,3,8, and 10 intersect Wilson's Creek or other streams and as a result, the openings would be maintained with very short vegetation.
- **Establish filter strips along roads and parking areas.** Filter strips and vegetated swales will be established along the downhill margins of all roads and parking areas to capture runoff, slow the water, and increase infiltration. Porous pavements in parking areas can also be introduced to slow water and increase infiltration.

- **Install porous concrete where vehicles park.** One of the BMPs for addressing watershed issues indicated in the 2004 CLR was the use of porous pavements within the park

2.2 Ongoing Management Activities and Mitigation Measures for the NPS-Preferred Alternative

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

The following tables detail past and ongoing monitoring guidelines and mitigation measures for each impact topic retained for analysis. It is intended that the past and ongoing monitoring and mitigation measures would be continued upon implementation of the NPS-preferred alternative and supplemented by those actions labeled as “Future Monitoring Guidelines and Mitigation Measures.”



Figure 2-6: Example of porous paving in parking and adjacent planting areas.



Figure 2-7: Large expanse of lawn or mown field for regular parking or overflow parking can contain grass pavers to aid in slowing down water and increasing infiltration.

1 **Table 2-1: Natural Resources**

Monitoring Guidelines and Mitigation Measures for Natural Resources	
Past and Ongoing monitoring / mitigation guidelines and measures	
<ul style="list-style-type: none"> ▪ A sampling and analysis protocol established by NPS Heartland Inventory and Monitoring Network should be used to monitor the plant community over the long term. ▪ When sites are disturbed by maintenance or construction activities, park staff re-establishes vegetation based on inventories and monitoring by Heartland I&M and recommendations in the Vegetation Implementation Plan (NPS VIP 2014). ▪ Heartland I&M continues to monitor the white-tail deer population numbers and incidents of disease in the park. Heartland will also continue to monitor bird communities, aquatic invertebrates in Wilson's Creek, status of Missouri bladderpod, and the forest communities in the park. Monitoring efforts will be increased to cover more of the landscape that is currently being monitored. ▪ Wilson's Creek National Battlefield will continue to operate under a fire management plan (NPS FMP 2004). All monitoring and management procedures are outlined in detail in the management plan for prescribed burns in the park. 	
Future monitoring guidelines and required mitigation measures	
<ul style="list-style-type: none"> ▪ Best Management Practices (BMPs) are required to support the implementation and management of actions taken in the preferred alternative. Refer to established BMPs for forestry and water quality actions. The Missouri Dept. of Conservation, the Great Lakes States and US and State Forest Services have well established BMPs. ▪ NPS will be required to monitor trail use/erosion and make adjustments on carrying capacity based on monitoring findings. ▪ Temporary barriers will be provided to protect existing trees and shrubs that are not identified for removal, specifically during clearing for battlefield viewsheds. Barriers will extend out to trees' drip lines. ▪ Vegetative filter strips will be used to filter and clean sediment, organic material, nutrients, chemicals, and other pollutants from run-off water as it leaves a non-point source. Placed between pollution sources and water resources, these planted filter systems can effectively mitigate soil erosion and polluted run-off. ▪ In rehabilitation of glades, begin regular prescribed burns as fuel loads permit or every five years before fall germination of Missouri bladderpod. Individual burns may match the frequency of prescribed burns with those in surrounding areas. ▪ Manage savanna communities in conjunction with adjacent glade, buffer, and filter strip communities. Avoid making firebreaks at the edges of these plant communities; allow fires to run from one community to the next. Begin regular prescribed burns usually every two years in a well-established savanna once the canopy is established. After that 4 to 5 year fire frequency intervals should be used to maintain the community. ▪ Work on viewsheds will occur in phases to ensure that the minimum amount of vegetation possible is removed to meet interpretive needs. ▪ Natural resource management would be integrated in an overall program of cultural resource management of the historical landscape. ▪ Management of exotic species will be used to restore the battlefield's landscape to its 1861 condition; this includes the restoration of native plant habitat. ▪ Identification of specific areas of prime and unique farmland is required and establishment of management strategies for the soils in conjunction with changing land use and associated vegetation. ▪ When soil excavation is an unavoidable part of an approved facility development project, the National Park Service will minimize soil excavation, erosion, and offsite soil migration during and after the activity. 	

1

2 **Table 2-2: Cultural Resources**

Monitoring Guidelines and Mitigation Measures for Cultural Resources	
Past and Ongoing monitoring / mitigation guidelines and measures	
<ul style="list-style-type: none"> ▪ The condition of known archeological resources is documented and monitored by staff for changes in condition and site-specific threats. ▪ Site condition assessments by a NPS-approved archeologist are part of project-specific surveys. ▪ Ongoing protection of archeological sites from disturbance, except for investigations necessary to address important research questions, and to consider proposed new additions such as trails, interpretive exhibits, and vegetation management treatments. ▪ Monitoring of archeological sites to determine visitor safety and resource protection concerns. ▪ Monitoring water resource margins for erosion and associated emerging archeological resources. ▪ Prior to all fire management activities, cultural resources are identified and avoided to the extent possible. ▪ Mechanical treatments and prescribed fire is used to reduce fuel loads near historical structures. ▪ Ongoing management focusing on retaining and enhancing the general historic character of the battlefield cultural landscape. 	
Future monitoring guidelines and required mitigation measures	
<ul style="list-style-type: none"> ▪ Stabilization of known archeological resources affected by erosion is required by establishing and maintaining grass cover. Installation of erosion control measures such as textiles and grass using methods that do not further disturb subsurface resources are desirable. Avoid the use of material that is visually incompatible with the character of the areas, such as riprap or other large stone. ▪ It is required that all activities would comply with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Federal Register 44716, revised). ▪ Prior to any soil disturbing activities, a thorough geophysical baseline survey of the property is required and adequate archeological ground truthing of the geophysical anomalies would be conducted to determine their nature, integrity, and extent. ▪ Known archeological resources in the vicinity of project activities will be identified and delineated for avoidance prior to project work. ▪ NPS will coordinate with the SHPO throughout the course of the project to protect and mitigate cultural resources affected by the action alternative. ▪ In establishment of viewsheds proposed in the preferred alternative, it is required that NPS engage an archeologist, natural resource specialist, and historical landscape architect to field-check the areas to be cleared and ensure that no cultural or natural resources will be adversely affected prior to removal of woodland vegetation. ▪ Vegetation management consistent with the national battlefield's Fire Management Plan (NPS 2004), recommendations in the Cultural Landscape Report (NPS 2004), and the Vegetation Management Implementation Plan (NPS 2014) will be used in the implementation of the preferred alternative to modify the national battlefield's appearance to resemble more closely the historic conditions 	

3

1 **Table 2-3: Visitor Use and Experience**

Monitoring Guidelines and Mitigation Measures for Visitor Use and Experience	
Past and Ongoing monitoring / mitigation guidelines and measures	
<ul style="list-style-type: none"> ▪ Incidences of human and wildlife interactions are monitored. ▪ Visitation data is monitored through various methods such as visitor surveys, transportation data, and concessioner data. ▪ Periodic visitor surveys and data collection are used to determine visitor use patterns, visitor characteristics, visitor use conflicts, and visitor preferences and satisfaction with interpretive and recreational opportunities, programs, services and facilities. ▪ Resource condition surveys are conducted as needed. ▪ Monitoring all prescribed fires that have the potential to impact visitor experience. ▪ Continued management of the battlefield cultural landscape provides visitors with an insight into the general conditions that the combatants encountered on August 10, 1861 and would facilitate the visitor's understanding of the dynamic course of this battle. ▪ NPS managers will continue to monitor areas used by visitors for signs of native vegetation disturbance, trampling, trail erosion, or the development of social trails. ▪ Existing facilities will be retrofitted and new facilities designed to meet Leadership in Energy and Environmental Design (LEED) standards to demonstrate the NPS commitment to protect our natural and cultural resources for future generations. 	
Future monitoring guidelines and required mitigation measures	
<ul style="list-style-type: none"> ▪ During establishment and clearing for viewsheds provide educational and/or interpretive information to park employees and visitors on the value of clear-cutting to rehabilitate habitats and improve views important to interpreting events of the battle of Wilson's Creek. ▪ In interpreting missing 1861 farmsteads, it is required to keep vegetation mowed which offers the visitor a strong visual aid to understand the location and importance of each farmstead to the 1861 Battle of Wilson's Creek. Split rail fencing in conjunction with mowing, or separately offers another strong visual aid for interpreting missing farmsteads. ▪ Visitor use and access to areas of highly sensitive and vulnerable cultural or natural resources requires mitigation measures. Appropriate activities in these areas will be limited to research and passive recreational uses such as hiking. Interpretive programs and exhibits will provide information and interpret ongoing research activities 	

2

1 **Table 2-4: Human Health and Safety**

Monitoring Guidelines and Mitigation Measures for Human Health and Safety	
Past and Ongoing monitoring / mitigation guidelines	
<ul style="list-style-type: none"> ▪ Inform the general public of wildland fires and prescribed fires through press releases and general interpretive presentations. ▪ No public access is allowed to any areas affected by fire. ▪ Appropriate regulatory and/or enforcement agencies are notified prior to any prescribed burns to assist in safely managing pedestrian, equestrian or vehicular traffic. Warning signs are posted along roads and trails as necessary. ▪ Prior to prescribed fires, notification of nearby residents is carried out. During burns, roads are signed and park staff posted at roads that could be impacted by smoke to divert motorists to other routes. 	
Future monitoring guidelines and required mitigation measures	
<ul style="list-style-type: none"> ▪ The ongoing and required measures already in place that ensure visitor safety will continue where appropriate in the implementation of the actions proposed in the preferred alternative. ▪ NPS staff will mitigate impacts arising from increases in visitation and increased suburban development and traffic outside the national battlefield boundaries. 	

2

