
Chapter 6: Impacts from Treatment Alternatives and Environmental Consequences

6.0 Introduction

This chapter describes the environmental consequences associated with the alternatives presented in this document. It is organized by impact topic, which distills the issues and concerns into distinct subjects for discussion analysis. NEPA requires consideration of context, intensity, and duration of adverse and beneficial impacts (direct, indirect, and cumulative) and measures to mitigate for impacts. This document is also being used to comply with the requirements of Section 106 of the NHPA. The CEQ regulations that implement NEPA require assessment of impacts to cultural as well as natural resources.

6.1 General Methods

This section contains the environmental impacts, including direct and indirect effects, and their significance for each alternative. The analysis is based on the assumption that the mitigation measures identified in the “Mitigation” section of this CLR/EA would be implemented for the action alternatives. Overall, the NPS based these impact analyses and conclusions on: review of existing literature and park studies; information provided by experts within the park and other agencies; professional judgment and park staff insights; and public input.

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

Context: Context is the setting within which an impact would occur, such as parkwide (site alternatives) in George Washington Carver National Monument; or regional (in Newton County, Missouri).

Impact Intensity: Impact intensity is defined individually for each impact topic. There may be no impact, or impacts may be negligible, minor, moderate, or major.

Duration: Duration of impact is analyzed independently for each resource because impact duration is dependent on the resource being analyzed. Depending on the resource, impacts may last for the construction period, a single year or growing season, or longer. For purposes of this analysis, impact duration is described as short-term or long-term. Impact duration is defined in a table for each resource topic.

Type: Effects can be beneficial or adverse. Beneficial effects are positive changes in the condition or appearance of the resource or a change that moves the resource toward a desired condition. Adverse effects are negative changes in the condition or appearance of the resource or a change that moves the resource away from a desired condition.

Direct and Indirect Impacts: Effects can be direct, indirect, or cumulative. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and occur later or farther away, but

1 are still reasonably foreseeable. Direct and indirect
 2 impacts are considered in this analysis, but are not
 3 specified in the narratives. Cumulative effects are
 4 discussed in the next section.

5 **Threshold for Impact Analysis:** The duration
 6 and intensity of effects vary by resource.
 7 Therefore, the definitions for each impact topic
 8 are described separately. These definitions were
 9 formulated through the review of existing laws,
 10 policies, and guidelines; and with assistance from
 11 park staff and regional NPS staff. Impact intensity
 12 thresholds for negligible, minor, moderate, and
 13 major adverse effects are defined in a table for
 14 each resource topic.

15 **6.2 Cumulative Impacts**

16 The CEQ regulations that implement NEPA
 17 require assessment of cumulative impacts in the
 18 decision-making process for federal projects.
 19 Cumulative impacts are defined as impacts which
 20 result when the impact of the proposed action is
 21 added to the impacts of other present and
 22 reasonably foreseeable future actions, regardless
 23 of what agency (federal or nonfederal) or person
 24 undertakes such other actions (40 CFR 1508.7).
 25 Cumulative impacts can result from individually
 26 minor, but collectively significant actions taking
 27 place over a period of time.

28 **Methods for Assessing Cumulative** 29 **Impacts**

30 Cumulative impacts were determined by
 31 combining the impacts of each action alternative
 32 and the no action alternative with other past,
 33 present, and reasonable foreseeable future actions.
 34 Past actions include activities that influenced and
 35 affected the current conditions of the environment
 36 near the project area. Ongoing or reasonably
 37 foreseeable future project near the park or the
 38 surrounding region might contribute to
 39 cumulative impacts. The geographic scope of the
 40 analysis includes actions in the project area as well
 41 as other actions in the park or surrounding lands,
 42 where overlapping resource impacts are possible.
 43 The temporal scope includes actions within a
 44 range of approximately 10 years. Once identified,

45 past, present, and reasonably foreseeable actions
 46 were then assessed in conjunction with the
 47 impacts of the alternatives to determine if they
 48 would have any added adverse or beneficial effects
 49 on a particular resource, park operation or visitor
 50 use. The impacts of past, present, and reasonably
 51 foreseeable actions vary for each resource.
 52 Cumulative impacts are considered for each
 53 alternative and are presented in the environmental
 54 consequences discussion for each impact topic.

55 To determine the potential cumulative impacts,
 56 the following existing and anticipated future
 57 projects at George Washington Carver National
 58 Monument and in the surrounding area were
 59 identified as contributing cumulative impacts:

- 60 ▪ Past, present and ongoing prairie restoration
 61 projects and prescribed burns;
- 62 ▪ Future projects associated with accessibility
 63 compliance as stipulated in the *George*
 64 *Washington Carver National Monument*
 65 *Accessibility Assessment*;
- 66 ▪ Projects associated with turf management in
 67 specified areas of the monument;
- 68 ▪ Projects associated with expanded
 69 interpretation;
- 70 ▪ Projects associated with future management of
 71 woodlands;
- 72 ▪ Ongoing and future archeological
 73 investigations; and
- 74 ▪ Projects associated with the demolition of
 75 the former housing buildings near the
 76 monument entrance

6.3 Impacts to Cultural Resources and Section 106 of the NHPA

For purposes of the NEPA process, cultural resources are considered under section 106 of the National Historic Preservation Act, and specifically its implementing regulations under 36 CFR Part 800. Section 106 requires federal agencies to consider the effects of an undertaking on historic properties, and provides a process under which to implement section 106.

In this CLR/EA, impacts to cultural resources are described in terms of context, duration, intensity, and type, as described above, are consistent with the regulations of the CEQ, which implements NEPA. CEQ regulations and the NPS Conservation Planning, Environmental Impact Analysis and Decision-making (DO-12) also call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact (e.g., reducing the intensity of an impact from major to moderate or minor). Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect, as defined by section 106, is similarly reduced. Although adverse effects under section 106 may be mitigated, the effect remains adverse. The park would coordinate with the SHPO to address mitigation measures for the preferred alternative.

6.4 Natural Resources

6.4.1 Soils

Impact Intensity Threshold

All information on soils that would potentially be impacted at George Washington Carver National Monument was compiled and where possible, map locations of sensitive soils were compared with locations of proposed modifications associated with the alternatives. Predictions about short-and long-term site impacts were based on a comparison of soil characteristics (as described in the Newton County soil survey) and anticipated expansion efforts.

The thresholds for this impact topic are presented in Table 6-1.

Table 6-1. Soils Impact and Intensity

Impact Intensity	Intensity Description
Negligible	Impacts to soils would be below or at the lower levels of detection.
Minor	The impacts to soils would be detectable and small. Mitigation may be needed to offset adverse impacts and would be relatively simple to implement and likely be successful.
Moderate	The impacts on soils would be readily apparent and result in a change to soils over a relatively wide area. Mitigation measures would be necessary to offset adverse impacts and likely be successful.
Major	The impacts on soils would be readily apparent and would substantially change the character of the soils over a large area in and out of the park. Extensive mitigation measures would be necessary to offset adverse impacts and their success could not be guaranteed.

Impacts of Alternative 1 Preserve Existing Conditions and Continue Current Management Strategies (No Action) on Soils

The No Action alternative focuses on preservation of the existing character of the George Washington Carver National Monument

1 landscape and current interpretive programs.
 2 Under this alternative, there would be no changes
 3 to the facilities that currently accommodate visitor
 4 access and interpretation, or park administration
 5 or maintenance. No provision would be made to
 6 accommodate overflow parking beyond the use of
 7 current road margins and parking areas. No
 8 further clearing would be undertaken and current
 9 mowing and vegetation management regimens
 10 would continue. There will be continued repair of
 11 deteriorated features and systems. Current levels
 12 of erosion would continue, and possibly increase
 13 with continued visitor wear on paths and use of
 14 other areas. Existing stands of invasive plants that
 15 preclude growth of other plants with root systems
 16 with better soil holding capability may contribute
 17 to soil erosion over time, given that removal would
 18 not occur as part of this alternative. This
 19 alternative does not include construction or other
 20 activities that would alter the site as it exists today.
 21 Overall this alternative would have *park-wide,*
 22 *long-term, negligible, adverse impact* on soils.

23 **Cumulative Impacts**

24 Past, present, and reasonably foreseeable future
 25 actions would have local, short-term, minor and
 26 adverse impacts on soils. Some of these actions
 27 include: routine utility repair, replacement, and
 28 new installation; small scale construction and
 29 excavation for fulfillment of accessibility
 30 requirements across the park; and present and
 31 future management and maintenance strategies for
 32 turf, prairie restoration, and conservation and
 33 management of the streams and Williams Pond.
 34 The overall cumulative impacts to soils from the
 35 “No Action” alternative in combination with the
 36 past, present, and reasonably foreseeable future
 37 actions would be park-wide, short-term, minor
 38 and adverse.

39 **Conclusions**

40 The No Action Alternative would have park-wide,
 41 long-term, negligible adverse impacts on Soils.
 42 Cumulative effects would be local, short-term,
 43 minor and adverse.

44 **Impacts of Elements Common to the**
 45 **Action Alternatives on Soils**

46 The following proposed actions would impact
 47 soils at George Washington Carver National
 48 Monument and are common to all the action
 49 alternatives:

- 50 ▪ Management of woodlands to remove invasive
 51 species and enhance interpretation from
 52 expanded trails
- 53 ▪ Natural resource management of restored
 54 grassland prairie for health, diversity, and soil
 55 and water conservation
- 56 ▪ Preservation, management, and interpretation
 57 of Carver Spring and the three streams –
 58 Carver, Harkins, and Williams branches
- 59 ▪ Maintenance and management of the wet
 60 prairie areas located in the southwest and
 61 south central areas of the national monument
 62 to promote continued diversity of species and
 63 community composition found only in
 64 seasonally wet areas
- 65 ▪ Maintenance and management of Harkins
 66 Woods
- 67 ▪ Conversion of the 30-acre parcel acquired by
 68 the park in 2006 to prairie to incorporate it
 69 into the overall approach to landcover
 70 management
- 71 ▪ Preservation, maintenance, and management
 72 of the cultural vegetation that contributes to
 73 the National Register significance of the park
 74 including: replanted walnut hedgerow along
 75 the Carver Trail near the Carver family
 76 cemetery; ornamental plantings at the park
 77 former residential complex; and the picnic
 78 grove shade trees
- 79 ▪ Preservation and maintenance of conservation
 80 land uses in order to protect natural resources
 81 of high quality and value, including native
 82 plant communities and water resources
- 83 ▪ Development of overflow parking area in the
 84 core developed area on the site of the former

1 residential/storage structures after planned
2 demolition

- 3 ■ Restoration of the persimmon grove along the
4 existing Carver Trail
- 5 ■ Consolidation of the picnic areas into one
6 large space in the existing picnic area north of
7 the entrance road
- 8 ■ Expansion of the trail system to enhance
9 interpretation of the entire site
- 10 ■ Provision of universal accessibility to all
11 buildings and structures as well as features
12 associated with the primary interpretive
13 experience, following the guidelines set forth
14 in the *George Washington Carver National
15 Monument: Accessibility Debriefing Report and
16 Final Report* (NPS 2014)
- 17 ■ Stabilization, maintenance, and considered
18 restoration of the Carver family cemetery wall
19 to reflect intended squared off stone stacking
20 methods and the original eastern opening for
21 access

22 Implementing this construction, removal of plant
23 material, or undertaking of these natural and
24 cultural resource management and preservation
25 strategies would result in *short-term, minor,
26 adverse impacts* to soils during implementation
27 because soils would be exposed, displaced or
28 otherwise disturbed. *Long-term, minor, adverse
29 impacts* upon the soils would also result from
30 displacement as well as compaction. Best
31 management practices (BMPs) would be employed
32 during construction, and for other activities such
33 as tree removal, to minimize impacts to soils.

34 **Impacts of Treatment Alternative 2** 35 **(Rehabilitation of the Landscape, including** 36 **Limited Restoration, For Interpretation to** 37 **Memorialize the Life and Achievements of** 38 **George Washington Carver on Soils**

39 As part of an overall strategy for managing the
40 cultural landscape of the park, this alternative
41 recommends developing additional connections
42 between interpretive programming and what is

43 known about the landscape that comprised the
44 Moses Carver farm during George Washington
45 Carver’s time on the property. Specific actions
46 resulting from the implementation of this
47 alternative include: clearing of woodlands not
48 present during the Carver period; thinning and
49 management of bottomland woodlands to depict
50 the historic savanna-like character; expansion of
51 the Carver Trail; and the addition of foundation
52 outlines and waysides to interpret former Moses
53 Carver farm features. Tree removal is anticipated
54 to lead to soil disturbance and erosion, particularly
55 in clearing of woodland and management of
56 bottomland. Once new savanna-like conditions
57 are established, soil erosion and disturbance
58 would be abated. This alternative would have a
59 *local, short-term, moderate adverse impact* on
60 soils.

61 **Cumulative Impacts**

62 Past, present and reasonably foreseeable future
63 actions are described under “Cumulative Impacts
64 for Alternative 1 (No Action).” The overall
65 cumulative impacts to soils from Alternative 2 in
66 combination with past, present, and reasonably
67 foreseeable future actions would be local, short-
68 term, moderate and adverse.

69 **Conclusion**

70 Treatment Alternative 2 would have local, short-
71 term, moderate adverse impacts on soils from
72 woodland management, trail expansion, and plant
73 and interpretive installations. Cumulative effects
74 would be local, short-term, moderate and adverse.

75 **Impacts of Treatment Alternative 3** 76 **(Interpretation and Celebration of the Life** 77 **and Work of George Washington Carver** 78 **Using an Ethnobotanical Approach) on** 79 **Soils**

80 The focus of this alternative would be the
81 interpretation of Carver’s work and career
82 through plants known to have been the focus of
83 his experiments and scientific exploration. Specific
84 actions resulting from the implementation of this
85 alternative include: planting of a wide variety of
86 native species, thinning of woodlands, and
87 expansion of the trail. Tree removal is anticipated

1 to lead to soil disturbance and erosion, particularly
2 in clearing of woodland. Some localized erosion
3 could also take place during the process of
4 introducing a large number of new plant materials
5 to the landscape at George Washington Carver
6 National Monument. Once new conditions are
7 established and new plantings are stabilized, soil
8 erosion and disturbance would be abated. This
9 alternative would have a *local, short-term, and*
10 *minor adverse impact* on soils.

11 **Cumulative Impacts**

12 Past, present and reasonably foreseeable future
13 actions are described under “Cumulative Impacts
14 for Alternative 1 (No Action).” The overall
15 cumulative impacts to soils from Alternative 3 in
16 combination with past, present, and reasonably
17 foreseeable future actions would be local, short-
18 term, minor and adverse.

19 **Conclusion**

20 Treatment Alternative 3 would have local, short-
21 term, minor adverse impacts on soils from
22 woodland clearing for new plant installation,
23 vegetation management, trail expansion, and plant
24 and interpretive installations. Cumulative effects
25 would be local, short-term, minor and adverse.

26 **Impacts of Treatment Alternative 4 (Honor, 27 Commemoration, and Interpretation of the 28 Life and Legacy of George Washington 29 Carver by Employment of a Combination 30 of Agricultural Heritage and Exhibits of 31 Plants Known to Dr. Carver) on Soils**

32 This rehabilitation treatment alternative focuses
33 on the interpretation of several features known to
34 have been present on the Moses Carver farm
35 during George Washington Carver’s boyhood that
36 are no longer present to convey the scale,
37 arrangement, orientation and elements of the
38 historic farmstead. These include field and pasture
39 patterns of agricultural production, walnut
40 hedgerows, the fruit and nut orchard, and a
41 persimmon grove, as well as the farm area which
42 would be addressed in part through physical
43 means such as foundation outlines and mow
44 patterns. Specific actions resulting from the
45 implementation of this alternative are anticipated

46 to include plantings of an orchard and persimmon
47 grove, planting along trails and roads, and
48 expanding the trail system. Tree removal is
49 anticipated to lead to soil disturbance and erosion,
50 particularly in clearing of woodland. Some
51 localized erosion could also take place during the
52 process of introducing a large number of new
53 plant materials to the landscape at the monument.
54 Once new conditions are established and new
55 plantings are stabilized, soil erosion and
56 disturbance would be abated. This alternative
57 would have a *local, short-term, and moderate*
58 *adverse impact* on soils.

59 **Cumulative Impacts**

60 Past, present and reasonably foreseeable future
61 actions are described under “Cumulative Impacts
62 for Alternative 1 (No Action).” The overall
63 cumulative impacts to soils from Alternative 4 in
64 combination with past, present, and reasonably
65 foreseeable future actions would be local, short-
66 term, moderate and adverse.

67 **Conclusion**

68 Treatment Alternative 4 would have local, short-
69 term, moderate adverse impacts on soils from
70 woodland management, trail expansion, and plant
71 and interpretive installations. Cumulative effects
72 would be local, short-term, moderate and adverse.

73

6.4.2 Vegetation (Grassland and Forest)

Impact Intensity Threshold

The comprehensive information, study, analysis, guidance and mapping of the vegetation at George Washington Carver National Monument by the Heartland Inventory and Monitoring Program, the MoRAP report, the Invasive Plant Management Plan/EA Assessment and other studies were used to consider the impacts of the alternatives on vegetation. The park manages both grassland and forest. Grasslands cover approximately 127 acres of the park. Forested areas cover approximately 61 acres and occur primarily along streams, but extend into the uplands. The picnic area and the visitor center and the administration and housing complexes are highly managed and manicured, with a large proportion of those areas planted in non-native trees and shrubs. An area of special concern within the national monument is the Harkins Woods, located in the northwest corner of the site. As shown in tree survey work, the makeup of the forest is markedly different from the rest of the national monument. In addition, several plant species have only been recorded from this area. Impact assessments were based on the expected disturbance to vegetation communities, presence and location of sensitive species, species of special concern, and invasive species. Assessments about short-and long-term site impacts were based on the anticipated effects of construction and management strategies and vegetative cover change on soil erosion, soil moisture, community stability, and wildlife.

The thresholds for change for the intensity of an impact on vegetation are defined as follows in Table 6-2.

Table 6-2. Vegetation Impact and Intensity

Impact Intensity	Intensity Description
Negligible	Grassland: Individual species of the prairie restoration composition may occasionally be impacted, but measurable or perceptible changes in the overall species community size, integrity, or continuity would not occur.

	Forest: Individual native plants may occasionally be impacted, but measurable or perceptible changes in plant community size, integrity, or continuity would not occur.
Minor	<p>Grassland: Impacts on prairie restoration composition would be measurable or perceptible, but would be localized within a small area. The viability of the community would not be impacted and the community, if managed for prairie restoration, would recover.</p> <p>Forest: Impacts on native plants would be measurable or perceptible, but would be localized within a small area. The viability of the plant community would not be impacted and the community, if left alone, would recover.</p>
Moderate	<p>Grassland: Impacts would occur to a sizable segment of the prairie species composition over a relatively large area that would be readily measurable in terms of abundance, distribution, quantity, or quality. Mitigation measures to offset/reduce adverse impacts would be necessary and would likely be successful.</p> <p>Forest: Impacts would occur to a sizable segment of the native plant community over a relatively large area that would be readily measurable in terms of abundance, distribution, quantity, or quality. Mitigation measures to offset/reduce adverse impacts would be necessary and would likely be successful.</p>
Major	<p>Grassland: Impacts on prairie species composition would be readily apparent and would substantially change community types over a large area, inside and outside the site. Extensive mitigation measures would be necessary to offset adverse impacts, and their success would not be ensured.</p> <p>Forest: Impacts on native plant communities would be readily apparent and would substantially change vegetative community types over a large area, inside and outside the site. Extensive mitigation measures would be necessary to offset adverse impacts, and their success would not be ensured.</p>

1 **Impacts of Alternative 1 Preserve Existing**
 2 **Conditions and Continue Current**
 3 **Management Strategies (No Action) on**
 4 **Vegetation**

5 The grassland and forest vegetation identified
 6 within the current boundaries of George
 7 Washington Carver National Monument, are part
 8 of the existing landcover character and patterns.
 9 Under Alternative 1 (No Action) the current
 10 landscape patterns of spatial organization,
 11 composed of a developed subzone featuring
 12 ornamental plantings, shade trees, and turf,
 13 riparian woodlands along the stream corridors,
 14 and restored grassland prairie will be perpetuated.
 15 No further site clearing would be undertaken and
 16 current mowing and vegetation management
 17 regimens would continue. The park will continue
 18 to utilize seeding, planting, mowing, haying, and
 19 prescribed burning to maintain and restore the
 20 prairie. Treatment would focus on maintenance of
 21 existing landcover character and patterns,
 22 conservation of natural resources, and
 23 continuation of current prairie restoration
 24 strategies. Comprehensive woodland management
 25 and removal of invasive species management
 26 strategies addressed in studies by Heartland
 27 Network are not currently integrated into the
 28 current vegetation management programs or
 29 strategies. Under this alternative, woodland
 30 management is not addressed and there is no
 31 strategic comprehensive program for the removal
 32 of invasive species. Overall this alternative would
 33 have *park-wide, long-term, minor, adverse*
 34 *impact* on grassland prairie, and *local, long-term,*
 35 *moderate, adverse impact* on woodland
 36 vegetation.

37 **Cumulative Impacts**

38 Past, present, and reasonably foreseeable future
 39 actions would have local, short-term, and minor
 40 adverse impacts on the grassland and woodland
 41 vegetation at George Washington Carver National
 42 Monument. Some of these actions include: routine
 43 utility repair, replacement, and new installation;
 44 small scale construction and excavation for
 45 fulfillment of accessibility requirements across the
 46 park; and present and future management and
 47 maintenance strategies for turf, prairie restoration,

48 and conservation and management of the streams
 49 and Williams Pond. The overall cumulative
 50 impacts to grassland and woodland vegetation
 51 from the “No Action” alternative in combination
 52 with the past, present, and reasonably foreseeable
 53 future actions would be park-wide, short-term,
 54 minor to moderate and adverse.

55 **Conclusions**

56 The No Action Alternative would have local and
 57 park-wide, long-term, minor to moderate adverse
 58 impacts on grassland and woodland Vegetation.
 59 Cumulative effects would be park-wide, short-
 60 term, moderate and adverse.

61 **Impacts of Elements Common to the**
 62 **Action Alternatives on Vegetation**

63 The following proposed actions would impact
 64 vegetation at George Washington Carver National
 65 Monument and are common to all the action
 66 alternatives:

- 67 ▪ Management of woodlands to remove invasive
 68 species and enhance interpretation from
 69 expanded trails
- 70 ▪ Natural resource management of restored
 71 grassland prairie for health, diversity, and soil
 72 and water conservation
- 73 ▪ Preservation, management, and interpretation
 74 of Carver Spring and the three streams:
 75 Carver, Harkins, and Williams branches
- 76 ▪ Maintenance and management of the wet
 77 prairie areas located in the southwest and
 78 south central areas of the national monument
 79 to promote continued diversity of species and
 80 community composition found only in
 81 seasonally wet areas
- 82 ▪ Maintenance and management of Harkins
 83 Woods
- 84 ▪ Conversion of the 30-acre parcel acquired by
 85 the park in 2006 to prairie to incorporate it
 86 into the overall approach to landcover
 87 management

- 1 ▪ Preservation, maintenance, and management
2 of the cultural vegetation that contributes to
3 the National Register significance of the park
4 including: replanted walnut hedgerow along
5 the Carver Trail near the Carver family
6 cemetery; ornamental plantings at the park
7 former residential complex; and the picnic
8 grove shade trees

- 9 ▪ Preservation and maintenance of conservation
10 land uses in order to protect natural resources
11 of high quality and value, including native
12 plant communities and water resources

- 13 ▪ Development of overflow parking area in the
14 core developed area on the site of the former
15 residential/storage structures after planned
16 demolition

- 17 ▪ Restoration of the persimmon grove along the
18 existing Carver Trail

- 19 ▪ Consolidation of the picnic areas into one
20 large space in the existing picnic area north of
21 the entrance road

- 22 ▪ Expansion of the trail system to enhance
23 interpretation of the entire site

- 24 ▪ Provision of universal accessibility to all
25 buildings and structures as well as features
26 associated with the primary interpretive
27 experience, following the guidelines set forth
28 in the *George Washington Carver National*
29 *Monument: Accessibility Debriefing Report and*
30 *Final Report* (NPS 2014)

- 31 ▪ Stabilization, maintenance, and considered
32 restoration of the Carver family cemetery wall
33 to reflect intended squared off stone stacking
34 methods and the original eastern opening for
35 access

- 36 Implementing some proposed construction or
37 management strategies, or the undertaking of the
38 restoration of the persimmon grove would result
39 in *local, short-term, minor to moderate, adverse*
40 *impacts* to woodland vegetation during
41 implementation. Continued natural resource
42 management of restored grassland prairie for

43 health, diversity, and soil and water conservation
44 and management of woodlands to remove invasive
45 species and other expanded natural and cultural
46 resource preservation, management, and
47 maintenance strategies would result in *park-wide,*
48 *long-term, minor to moderate, beneficial impacts* to
49 vegetation.

50 **Impacts of Treatment Alternative 2** 51 **(Rehabilitation of the Landscape, including** 52 **Limited Restoration, For Interpretation to** 53 **Memorialize the Life and Achievements of** 54 **George Washington Carver on Vegetation**

55 Comprehensive woodland management and
56 removal of invasive species management strategies
57 as well as prairie manage strategies addressed in
58 studies by Heartland Network will be integrated
59 into the current vegetation management
60 procedures, expansion, and programs.
61 Implementing some proposed construction or
62 vegetation management strategies, or the
63 undertaking of the restoration of the persimmon
64 grove and orchard would result in potential
65 impacts on grassland and woodland vegetation.
66 Continued natural resource management of
67 restored grassland prairie for health, diversity, and
68 soil and water conservation and management of
69 woodlands to remove invasive species and other
70 expanded natural and cultural resource
71 preservation, management, and maintenance
72 strategies would also result in potential impacts to
73 both grasslands and woodlands.

74 Alternative 2 would have *park-wide, short-term,*
75 *moderate adverse impacts* to grassland prairie
76 and woodlands during implementation.

77 Alternative 2 would also have *park-wide, long-*
78 *term moderate and beneficial impacts* to
79 grasslands and woodlands

80 **Cumulative Impacts**

81 Past, present and reasonably foreseeable future
82 actions are described under “Cumulative Impacts
83 for Alternative 1 (No Action).” The overall
84 cumulative impacts to Vegetation from Alternative
85 2 in combination with past, present, and
86 reasonably foreseeable future actions would be
87 park-wide, long-term, moderate and adverse

1 during implementation and park-wide, long-term,
2 moderate and beneficial once established.

3 **Conclusion**

4 Treatment Alternative 2 would have park-wide,
5 short-term and moderate adverse impacts and
6 park-wide, long-term, moderate and beneficial
7 impacts to grassland and woodland vegetation
8 from construction of new interpretive features,
9 enhanced interpretation, trail expansion,
10 restoration of stream banks, management
11 strategies for Williams Pond and the springs and
12 streams, and management of the woodland
13 corridors surrounding the streams. Beneficial
14 impacts would be due to continued natural
15 resource management of restored grassland prairie
16 for health, diversity, and soil and water
17 conservation and management of woodlands to
18 remove invasive species and other expanded
19 natural and cultural resource preservation,
20 management, and maintenance strategies.
21 Cumulative effects would be park-wide, long-
22 term, moderate and adverse to moderate and
23 beneficial.

24 **Impacts of Treatment Alternative 3** 25 **(Interpretation and Celebration of the Life** 26 **and Work of George Washington Carver** 27 **Using an Ethnobotanical Approach) on** 28 **Vegetation**

29 Comprehensive woodland management and
30 removal of invasive species management strategies
31 as well as prairie manage strategies addressed in
32 studies by Heartland Network will be integrated
33 into the current vegetation management
34 procedures, expansion, and programs.
35 Implementing some proposed construction or
36 vegetation management strategies, or the
37 undertaking of the restoration of the persimmon
38 grove and orchard would result in potential
39 impacts on grassland and woodland vegetation.
40 Continued natural resource management of
41 restored grassland prairie for health, diversity, and
42 soil and water conservation and management of
43 woodlands to remove invasive species and other
44 expanded natural and cultural resource
45 preservation, management, and maintenance
46 strategies would also result in potential impacts to
47 both grasslands and woodlands.

48 Alternative 3 would have *park-wide, short-term,*
49 *minor impacts* to grassland prairie and
50 woodlands during implementation.

51 Alternative 3 would also have *park-wide, long-*
52 *term minor and beneficial impacts* to grasslands
53 and woodlands.

54 **Cumulative Impacts**

55 Past, present and reasonably foreseeable future
56 actions are described under “Cumulative Impacts
57 for Alternative 1 (No Action).” The overall
58 cumulative impacts to Vegetation from Alternative
59 3 in combination with past, present, and
60 reasonably foreseeable future actions would be
61 park-wide, long-term, minor and adverse during
62 implementation and park-wide, long-term, minor
63 and beneficial once established.

64 **Conclusion**

65 Treatment Alternative 3 would have park-wide,
66 short-term and minor adverse impacts and park-
67 wide, long-term, minor and beneficial impacts to
68 grassland and woodland vegetation from
69 construction of new interpretive features,
70 enhanced interpretation, trail expansion,
71 restoration of stream banks, management
72 strategies for Williams Pond and the springs and
73 streams, and management of the woodland
74 corridors surrounding the streams. Beneficial
75 impacts would be due to continued natural
76 resource management of restored grassland prairie
77 for health, diversity, and soil and water
78 conservation and management of woodlands to
79 remove invasive species and other expanded
80 natural and cultural resource preservation,
81 management, and maintenance strategies.
82 Cumulative effects would be park-wide, long-
83 term, minor and adverse to minor and beneficial.

1 **Impacts of Treatment Alternative 4 (Honor,**
 2 **Commemoration, and Interpretation of the**
 3 **Life and Legacy of George Washington**
 4 **Carver by Employment of a Combination**
 5 **of Agricultural Heritage and Exhibits of**
 6 **Plants Known to Dr. Carver) on Vegetation**

7 Comprehensive woodland management and
 8 removal of invasive species management strategies
 9 as well as prairie manage strategies addressed in
 10 studies by Harrington (1999), Burfield (2011), and
 11 Heartland Network will be integrated into the
 12 current vegetation management procedures,
 13 expansion, and programs. Implementing some
 14 proposed construction or vegetation management
 15 strategies, or the undertaking of the restoration of
 16 the persimmon grove and orchard would result in
 17 potential impacts on grassland and woodland
 18 vegetation. Continued natural resource
 19 management of restored grassland prairie for
 20 health, diversity, and soil and water conservation
 21 and management of woodlands to remove invasive
 22 species and other expanded natural and cultural
 23 resource preservation, management, and
 24 maintenance strategies would also result in
 25 potential impacts to both grasslands and
 26 woodlands.

27 Alternative 4 would have *park-wide, short-term,*
 28 *moderate impacts* to grassland prairie and
 29 woodlands during implementation.

30 Alternative 4 would also have *park-wide, long-*
 31 *term moderate and beneficial impacts* to
 32 grasslands and woodlands.

33 **Cumulative Impacts**

34 Past, present and reasonably foreseeable future
 35 actions are described under “Cumulative Impacts
 36 for Alternative 1 (No Action).” The overall
 37 cumulative impacts to Vegetation from Alternative
 38 4 in combination with past, present, and
 39 reasonably foreseeable future actions would be
 40 park-wide, long-term, moderate and adverse
 41 during implementation and park-wide, long-term,
 42 moderate and beneficial once established.

43 **Conclusion**

44 Treatment Alternative 4 would have park-wide,
 45 short-term and moderate adverse impacts and
 46 park-wide, long-term, moderate and beneficial
 47 impacts to grassland and woodland vegetation
 48 from construction of new interpretive features,
 49 enhanced interpretation, trail expansion,
 50 restoration of stream banks, management
 51 strategies for Williams Pond and the springs and
 52 streams, and management of the woodland
 53 corridors surrounding the streams. Beneficial
 54 impacts would be due to continued natural
 55 resource management of restored grassland prairie
 56 for health, diversity, and soil and water
 57 conservation and management of woodlands to
 58 remove invasive species and other expanded
 59 natural and cultural resource preservation,
 60 management, and maintenance strategies.
 61 Cumulative effects would be park-wide, long-
 62 term, moderate and adverse to moderate and
 63 beneficial.

64 **6.4.3 Water Quality**

65 **Impact Intensity Threshold**

66 The *NPS Management Policies 2001* (NPS 2000)
 67 state that the NPS will “take all necessary actions
 68 to maintain or restore the quality of surface waters
 69 and ground waters within the parks consistent
 70 with the Clean Water Act and all other applicable
 71 federal, state and local laws and regulation” (sec.
 72 4.6.3)

73 Other considerations in assessing the magnitude of
 74 water quality impacts are the composition and
 75 effectiveness of drainages, the content of storm
 76 water runoff, and the current condition of the
 77 streams on site; Carver Branch, Williams Branch,
 78 and Harkins Branch and the condition of Williams
 79 Pond. All available existing information on water
 80 quality associated with the above resources
 81 potentially impacted by proposed actions in the
 82 alternatives was compiled and researched.
 83 Predictions about short-and long-term site
 84 impacts were based on the anticipated effects of
 85 expanded trails and vegetative cover change on
 86 soil erosion, and the potential for increased
 87 sediment loads on the streams. Also considered
 88 was the potential for actions to increase flow

1 quantities during storm events, and the additions
 2 of other measurable pollutants that would be
 3 detrimental to existing water quality. The
 4 thresholds for change for the intensity of an
 5 impact on water quality are defined as follows in
 6 Table 6-3.

7 **Table 6-3. Water Quality Impact and**
 8 **Intensity**

Impact Intensity	Intensity Description
Negligible	Impacts are chemical, physical, or biological effects that would not be detectable, would be well within water quality standards or criteria, and would be within historical or desired water quality conditions.
Minor	Impacts (chemical, physical, or biological effects) would be detectable but would be well within water quality standards or criteria and within historical or desired water quality conditions.
Moderate	Impacts (chemical, physical, or biological effects) would be readily detectable but would be at or within water quality standards or criteria and within historical or desired water quality conditions.
Major	Impacts (chemical, physical, or biological effects) would be detectable and would be regularly above water quality standards or criteria and within historical or desired water quality conditions.

9

10 **Impacts of Alternative 1 Preserve Existing**
 11 **Conditions and Continue Current**
 12 **Management Strategies (No Action) on**
 13 **Water Quality**

14 There are three streams that flow through George
 15 Washington Carver National Monument and two
 16 spring branches that are completely contained
 17 within the park. Carver Branch, Harkins Branch,
 18 and Williams Branch are all tributaries of Shoal
 19 Creek. Williams Spring is currently inundated by
 20 Williams Pond. Carver Springs consists of a very
 21 short spring branch that flows into Carver Branch.
 22 Stream condition in the national monument is
 23 generally good. Protection of surface water and
 24 ground water is a management priority and

25 currently water quality meets or exceeds all
 26 applicable water quality standards. NPS and NPS-
 27 permitted programs and facilities are currently
 28 maintained and operated to avoid pollution of
 29 surface water and groundwater. Under this
 30 alternative, this protection will continue with the
 31 current management and maintenance strategies
 32 in place. The current landscape patterns of spatial
 33 organization composed in part by riparian
 34 woodlands along stream corridors, will also be
 35 perpetuated. The Williams Pond would remain in
 36 its current configuration. Maintenance of existing
 37 water systems and features would continue as well
 38 as protection of water resources. Under this
 39 alternative, strategy for the maintenance and
 40 management of the stream banks or any expanded
 41 management or maintenance for Williams Pond
 42 would not be in place. Overall this alternative
 43 would have *park-wide, long-term, negligible,*
 44 *adverse impact* on water quality.

45 **Cumulative Impacts**

46 Past, present, and reasonably foreseeable future
 47 actions would have local, short-term, and minor
 48 adverse impacts on water quality. Some of these
 49 actions include: routine utility repair, replacement,
 50 and new installation; small scale construction and
 51 excavation for fulfillment of accessibility
 52 requirements across the park; and present and
 53 future management and maintenance strategies for
 54 turf, prairie restoration, and conservation and
 55 management of the streams and Williams Pond.
 56 The overall cumulative impacts to water quality
 57 from the “No Action” alternative in combination
 58 with the past, present, and reasonably foreseeable
 59 future actions would be local, short-term, minor
 60 and adverse.

61 **Conclusions**

62 The No Action Alternative would have park-wide,
 63 long-term, negligible adverse impacts on Water
 64 Quality. Cumulative effects would be local, short-
 65 term, minor and adverse.

66 **Impacts of Elements Common to the**
 67 **Action Alternatives on Water Quality**

68 The following proposed actions would impact
 69 water quality at George Washington Carver

1 National Monument and are common to all the
2 action alternatives:

- 3 ■ Management of woodlands to remove invasive
4 species and enhance interpretation from
5 expanded trails
- 6 ■ Natural resource management of restored
7 grassland prairie for health, diversity, and soil
8 and water conservation
- 9 ■ Preservation, management, and interpretation
10 of Carver Spring and the three streams:
11 Carver, Harkins, and Williams branches
- 12 ■ Maintenance and management of the wet
13 prairie areas located in the southwest and
14 south central areas of the national monument
15 to promote continued diversity of species and
16 community composition found only in
17 seasonally wet areas
- 18 ■ Maintenance and management of Harkins
19 Woods
- 20 ■ Conversion of the 30-acre parcel acquired by
21 the park in 2006 to prairie to incorporate it
22 into the overall approach to landcover
23 management
- 24 ■ Preservation, maintenance, and management
25 of the cultural vegetation that contributes to
26 the National Register significance of the park
27 including: replanted walnut hedgerow along
28 the Carver Trail near the Carver family
29 cemetery; ornamental plantings at the park
30 former residential complex; and the picnic
31 grove shade trees
- 32 ■ Preservation and maintenance of conservation
33 land uses in order to protect natural resources
34 of high quality and value, including native
35 plant communities and water resources.
- 36 ■ Development of overflow parking area in the
37 core developed area on the site of the former
38 residential/storage structures after planned
39 demolition

- 40 ■ Restoration of the persimmon grove along the
41 existing Carver Trail
- 42 ■ Consolidation of the picnic areas into one
43 large space in the existing picnic area north of
44 the entrance road
- 45 ■ Expansion of the trail system to enhance
46 interpretation of the entire site
- 47 ■ Provision of universal accessibility to all
48 buildings and structures as well as features
49 associated with the primary interpretive
50 experience, following the guidelines set forth
51 in the *George Washington Carver National
52 Monument: Accessibility Debriefing Report and
53 Final Report* (NPS 2014)
- 54 ■ Stabilization, maintenance, and considered
55 restoration of the Carver family cemetery wall
56 to reflect intended squared off stone stacking
57 methods and the original eastern opening for
58 access

59 Implementing some proposed construction or
60 management strategies would result in *local, short-*
61 *term, negligible, adverse impacts* to water quality
62 during implementation. Proposed actions such as
63 continued natural resource management of
64 restored grassland prairie for health, diversity, and
65 soil and water conservation; preservation and
66 maintenance of conservation land uses to protect
67 water resources; preservation, management, and
68 interpretation of Carver Spring and the three
69 streams – Carver, Harkins, and Williams branches;
70 and other expanded natural and cultural resource
71 preservation, management, and maintenance
72 strategies would result in *long-term, moderate,*
73 *beneficial impacts* to water quality.

74 **Impacts of Treatment Alternative 2**
75 **(Rehabilitation of the Landscape, including**
76 **Limited Restoration, For Interpretation to**
77 **Memorialize the Life and Achievements of**
78 **George Washington Carver on Water**
79 **Quality**

80 There are three streams that flow through George
81 Washington Carver National Monument and two
82 spring branches that are completely contained

1 within the park. Carver Branch, Harkins Branch,
 2 and Williams Branch are all tributaries of Shoal
 3 Creek. Williams Spring is currently inundated by
 4 Williams Pond. Carver Springs consists of a very
 5 short spring branch that flows into Carver Branch.
 6 Stream condition in the national monument is
 7 generally good. Protection of surface water and
 8 ground water is a management priority and
 9 currently water quality meets or exceeds all
 10 applicable water quality standards. NPS and NPS-
 11 permitted programs and facilities are currently
 12 maintained and operated to avoid pollution of
 13 surface water and groundwater. Under Alternative
 14 2, protection will be expanded to include the
 15 stabilization of the stream banks and preservation
 16 of landscape patterns of spatial organization
 17 composed in part by riparian woodlands along
 18 stream corridors. Management strategies will
 19 address Williams Pond as well and the springs that
 20 occur on the site. Extended monitoring for water
 21 quality will also continue. Alternative 2 would
 22 have *park-wide, long-term, minor, and*
 23 *beneficial impact* on water quality.

24 **Cumulative Impacts**

25 Past, present and reasonably foreseeable future
 26 actions are described under “Cumulative Impacts
 27 for Alternative 1 (No Action).” The overall
 28 cumulative impacts to Water Quality from
 29 Alternative 2 in combination with past, present,
 30 and reasonably foreseeable future actions would
 31 be park-wide, long-term, minor and beneficial.

32 **Conclusion**

33 Treatment Alternative 2 would have park-wide,
 34 long-term and minor beneficial impacts to Water
 35 Quality from restoration of stream banks,
 36 management strategies for Williams Pond and the
 37 springs and streams, and management of the
 38 woodland corridors surrounding the streams.
 39 Cumulative effects would be park-wide, long-
 40 term, minor and beneficial.

41 **Impacts of Treatment Alternative 3** 42 **(Interpretation and Celebration of the Life** 43 **and Work of George Washington Carver** 44 **Using an Ethnobotanical Approach) on** 45 **Water Quality**

46 There are three streams that flow through George
 47 Washington Carver National Monument and two
 48 spring branches that are completely contained
 49 within the park. Carver Branch, Harkins Branch,
 50 and Williams Branch are all tributaries of Shoal
 51 Creek. Williams Spring is currently inundated by
 52 Williams Pond. Carver Springs consists of a very
 53 short spring branch that flows into Carver Branch.
 54 Stream condition in the national monument is
 55 generally good. Protection of surface water and
 56 ground water is a management priority and
 57 currently water quality meets or exceeds all
 58 applicable water quality standards. NPS and NPS-
 59 permitted programs and facilities are currently
 60 maintained and operated to avoid pollution of
 61 surface water and groundwater. Under Alternative
 62 3, protection will be expanded to include the
 63 stabilization of the stream banks and preservation
 64 of landscape patterns of spatial organization
 65 composed in part by riparian woodlands along
 66 stream corridors. Management strategies will
 67 address Williams Pond as well and the springs that
 68 occur on the site. Extended monitoring for water
 69 quality will also continue. Alternative 3 would
 70 have *park-wide, long-term, minor, and*
 71 *beneficial impact* on water quality.

72 **Cumulative Impacts**

73 Past, present and reasonably foreseeable future
 74 actions are described under “Cumulative Impacts
 75 for Alternative 1 (No Action).” The overall
 76 cumulative impacts to Water Quality from
 77 Alternative 3 in combination with past, present,
 78 and reasonably foreseeable future actions would
 79 be park-wide, long-term, minor and beneficial.

80 **Conclusion**

81 Treatment Alternative 3 would have park-wide,
 82 long-term and minor beneficial impacts to Water
 83 Quality from restoration of stream banks,
 84 management strategies for Williams Pond and the
 85 springs and streams, and management of the
 86 woodland corridors surrounding the streams.

1 Cumulative effects would be park-wide, long-
2 term, minor and beneficial.

3 **Impacts of Treatment Alternative 4 (Honor,
4 Commemoration, and Interpretation of the
5 Life and Legacy of George Washington
6 Carver by Employment of a Combination
7 of Agricultural Heritage and Exhibits of
8 Plants Known to Dr. Carver) on Water
9 Quality**

10 There are three streams that flow through George
11 Washington Carver National Monument and two
12 spring branches that are completely contained
13 within the park. Carver Branch, Harkins Branch,
14 and Williams Branch are all tributaries of Shoal
15 Creek. Williams Spring is currently inundated by
16 Williams Pond. Carver Spring consists of a very
17 short spring branch that flows into Carver Branch.
18 Stream condition in the national monument is
19 generally good. Protection of surface water and
20 ground water is a management priority and
21 currently water quality meets or exceeds all
22 applicable water quality standards. NPS and NPS-
23 permitted programs and facilities are currently
24 maintained and operated to avoid pollution of
25 surface water and groundwater. Under Alternative
26 4, protection will be expanded to include the
27 stabilization of the stream banks and preservation
28 of landscape patterns of spatial organization
29 composed in part by riparian woodlands along
30 stream corridors. Management strategies will
31 address Williams Pond as well and the springs that
32 occur on the site. Extended monitoring for water
33 quality will also continue. Alternative 4 would
34 have *park-wide, long-term, minor, and*
35 *beneficial impact* on water quality.

36 **Cumulative Impacts**

37 Past, present and reasonably foreseeable future
38 actions are described under “Cumulative Impacts
39 for Alternative 1 (No Action).” The overall
40 cumulative impacts to Water Quality from
41 Alternative 4 in combination with past, present,
42 and reasonably foreseeable future actions would
43 be park-wide, long-term, minor and beneficial.

44 **Conclusion**

45 Treatment Alternative 4 would have park-wide,
46 long-term and minor beneficial impacts to Water
47 Quality from restoration of stream banks,
48 management strategies for Williams Pond and the
49 springs and streams, and management of the
50 woodland corridors surrounding the streams.
51 Cumulative effects would be park-wide, long-
52 term, minor and beneficial.

53 **6.4.4 Wildlife and Wildlife Habitat**

54 **Impact Intensity Threshold**

55 Fauna of George Washington Carver National
56 Monument are typical of old fields and disturbed
57 woodlands in the Ozark Highlands. Wildlife
58 consists mainly of a large variety of birds, fish, and
59 small mammals.

60 Impacts on wildlife are closely related to impacts
61 on habitat. The analysis considered whether
62 actions would be likely to displace some or all
63 individuals of a species in George Washington
64 Carver National Monument or would result in loss
65 or creation of habitat conditions needed for the
66 viability of local or regional populations. Impacts
67 associated with wildlife could include any change
68 in roosting or foraging areas, food supply,
69 protective cover, or distribution or abundance of
70 species.

71 Impact analysis on wildlife and wildlife habitat was
72 based on previous studies completed for the park.
73 Changes in land cover, land use, management
74 practices, and the amount of impervious surface
75 that would occur in association with the proposed
76 alternatives have been considered for their
77 potential to impact wildlife and wildlife habitat at
78 the national monument. The thresholds of change
79 for the intensity of an impact on wildlife are
80 defined as follows in Table 6-4.

81

1 **Table 6-4. Wildlife and Wildlife Habitat**
 2 **Impact and Intensity**

Impact Intensity	Intensity Description
Negligible	Terrestrial wildlife and their habitats would not be impacted, or the impacts would be at or below the level of detection and would not be measurable or of perceptible consequence to wildlife populations.
Minor	Adverse impacts on wildlife or habitat would be measurable or perceptible, but localized within a small area. For adverse impacts, the mortality of an individual animal might occur but the viability of wildlife populations would not be impacted, and the community, if left alone, would recover.
Moderate	A change to terrestrial wildlife populations or habitat would occur over a relatively large area. The change would be readily measurable in terms of abundance, distribution, quantity, or quality of population. Mitigation measures would be necessary to offset adverse impacts, and they would likely be successful.
Major	Impacts on terrestrial wildlife populations or habitat would be readily apparent, and would substantially change wildlife populations over a large area in and out of the park. Extensive mitigation would be needed to offset adverse impacts, and the success of mitigation measures could not be ensured.

3
 4 **Impacts of Alternative 1 Preserve Existing**
 5 **Conditions and Continue Current**
 6 **Management Strategies (No Action) on**
 7 **Wildlife and Wildlife Habitat**

8 Under this Alternative 1 (No Action), there would
 9 be little change in the George Washington Carver
 10 National Monument character and management.
 11 Existing habitat would remain in place to continue
 12 to support populations of birds, mammals, and
 13 reptiles that currently use the site. There would be
 14 no changes to vegetation or new construction
 15 projects to jeopardize the important habitats on
 16 the site. Invasive plant stands are expected to
 17 increase, diminishing slightly the diversity of the
 18 plant community and thereby potential wildlife
 19 habitat. Over time, the existing successional

20 woodland would continue to mature, and may
 21 provide additional habitat for some species of
 22 interest. This alternative would have a *park-wide,*
 23 *long-term, minor, adverse impact* on wildlife
 24 and wildlife habitat.

25 **Cumulative Impacts**

26 Past, present, and reasonably foreseeable future
 27 actions would have local, short-term, and minor
 28 adverse impacts on Wildlife and Wildlife Habitat.
 29 Some of these actions include: routine utility
 30 repair, replacement, and new installation; small
 31 scale construction and excavation for fulfillment
 32 of accessibility requirements across the park; and
 33 present and future management and maintenance
 34 strategies for turf, prairie restoration, and
 35 conservation and management of the streams and
 36 Williams Pond. The overall cumulative impacts to
 37 Wildlife and Wildlife Habitat from the “No
 38 Action” alternative in combination with the past,
 39 present, and reasonably foreseeable future actions
 40 would be park-wide, short-term, minor and
 41 adverse.

42 **Conclusions**

43 The No Action Alternative would have park-wide,
 44 long-term, minor adverse impact on Wildlife and
 45 Wildlife Habitat. Cumulative effects would be
 46 park-wide, short-term, minor and adverse.

47 **Impacts of Elements Common to the**
 48 **Action Alternatives on Wildlife and**
 49 **Wildlife Habitat**

50 The following proposed actions would impact
 51 wildlife and wildlife habitat at George Washington
 52 Carver National Monument and are common to
 53 all the action alternatives:

- 54 ■ Management of woodlands to remove invasive
 55 species and enhance interpretation from
 56 expanded trails
- 57 ■ Natural resource management of restored
 58 grassland prairie for health, diversity, and soil
 59 and water conservation
- 60 ■ Preservation, management, and interpretation
 61 of Carver Spring and the three streams:
 62 Carver, Harkins, and Williams branches

- 1 ■ Maintenance and management of the wet
2 prairie areas located in the southwest and
3 south central areas of the national monument
4 to promote continued diversity of species and
5 community composition found only in
6 seasonally wet areas
- 7 ■ Maintenance and management of Harkins
8 Woods
- 9 ■ Conversion of the 30-acre parcel acquired by
10 the park in 2006 to prairie to incorporate it
11 into the overall approach to landcover
12 management
- 13 ■ Preservation, maintenance, and management
14 of the cultural vegetation that contributes to
15 the National Register significance of the park
16 including: replanted walnut hedgerow along
17 the Carver Trail near the Carver family
18 cemetery; ornamental plantings at the park
19 former residential complex; and the picnic
20 grove shade trees
- 21 ■ Preservation and maintenance of conservation
22 land uses in order to protect natural resources
23 of high quality and value, including native
24 plant communities and water resources.
- 25 ■ Development of overflow parking area in the
26 core developed area on the site of the former
27 residential/storage structures after planned
28 demolition
- 29 ■ Restoration of the persimmon grove along the
30 existing Carver Trail
- 31 ■ Consolidation of the picnic areas into one
32 large space in the existing picnic area north of
33 the entrance road
- 34 ■ Expansion of the trail system to enhance
35 interpretation of the entire site
- 36 ■ Provision of universal accessibility to all
37 buildings and structures as well as features
38 associated with the primary interpretive
39 experience, following the guidelines set forth
40 in the *George Washington Carver National*

41 *Monument: Accessibility Debriefing Report and*
42 *Final Report* (NPS 2014)

- 43 ■ Stabilization, maintenance, and considered
44 restoration of the Carver family cemetery wall
45 to reflect intended squared off stone stacking
46 methods and the original eastern opening for
47 access

48 Implementing construction of overflow parking,
49 restoration of the persimmon grove, and
50 expansion of the trail system would result in *park-*
51 *wide, short-term, minor, adverse impacts to wildlife*
52 *and wildlife habitat*, because some vegetation
53 including grasslands would be displaced, exposed
54 or disturbed. Use of best management practices
55 (BMPs) would be implemented during
56 construction and other soil disturbing activities
57 such as tree removal, to minimize impacts to
58 wildlife habitat.

59 *Long term, moderate, beneficial, impacts to wildlife*
60 *and wildlife habitat* would occur with the
61 implementation of the preservation, management
62 and maintenance strategies for conservation land
63 use, wet prairie areas, water resources, and
64 restoration of the grassland prairie.

65 **Impacts of Treatment Alternative 2**
66 **(Rehabilitation of the Landscape, including**
67 **Limited Restoration, For Interpretation to**
68 **Memorialize the Life and Achievements of**
69 **George Washington Carver on Wildlife and**
70 **Wildlife Habitat**

71 Changes in land cover, land use, management
72 practices, and the amount of impervious surface
73 that would occur in association with the proposed
74 alternatives have been considered for their
75 potential to impact wildlife and wildlife habitat at
76 the national monument. Implementing
77 construction of overflow parking, restoration of
78 the persimmon grove, and expansion of the trail
79 system would impact wildlife and habitat because
80 some vegetation including grasslands would be
81 displaced, exposed or disturbed. Use of best
82 management practices (BMPs) would be
83 implemented during construction and other soil
84 disturbing activities such as tree removal, to
85 minimize impacts to wildlife habitat. Alternative 2

1 would result in *park-wide, short-term, minor,*
2 *adverse impacts to Wildlife and Wildlife*
3 *Habitat.*

4 **Cumulative Impacts**

5 Past, present and reasonably foreseeable future
6 actions are described under “Cumulative Impacts
7 for Alternative 1 (No Action).” The overall
8 cumulative impacts to Wildlife and Wildlife
9 Habitat from Alternative 2 in combination with
10 past, present, and reasonably foreseeable future
11 actions would be park-wide, short-term, minor
12 and adverse.

13 **Conclusion**

14 Treatment Alternative 2 would have park-wide,
15 short-term and minor adverse impacts to Wildlife
16 and Wildlife Habitat from construction of new
17 interpretive features, enhanced interpretation, trail
18 expansion, restoration of stream banks,
19 management strategies for Williams Pond and the
20 springs and streams, and management of the
21 woodland corridors surrounding the streams.
22 Cumulative effects would be park-wide, short-
23 term, minor and adverse.

24 **Impacts of Treatment Alternative 3** 25 **(Interpretation and Celebration of the Life** 26 **and Work of George Washington Carver** 27 **Using an Ethnobotanical Approach) on** 28 **Wildlife and Wildlife Habitat**

29 Changes in land cover, land use, management
30 practices, and the amount of impervious surface
31 that would occur in association with the proposed
32 alternatives have been considered for their
33 potential to impact wildlife and wildlife habitat at
34 the national monument. Implementing
35 construction of overflow parking, restoration of
36 the persimmon grove, expansion of the trail
37 system, and clearing or thinning of woodlands for
38 installation of ethnobotanical plantings would
39 impact wildlife and habitat due to short-term
40 displacement of vegetation and expanded
41 woodland management strategies. Use of best
42 management practices (BMPs) would be
43 implemented during construction and other soil
44 disturbing activities such as tree removal, to
45 minimize impacts to wildlife habitat. Alternative 3

46 would result in **park-wide, short-term, and**
47 **minor adverse impacts to Wildlife and Wildlife**
48 **Habitat.**

49 **Cumulative Impacts**

50 Past, present and reasonably foreseeable future
51 actions are described under “Cumulative Impacts
52 for Alternative 1 (No Action).” The overall
53 cumulative impacts to Wildlife and Wildlife
54 Habitat from Alternative 3 in combination with
55 past, present, and reasonably foreseeable future
56 actions would be park-wide, short-term, minor
57 and adverse.

58 **Conclusion**

59 Treatment Alternative 3 would have park-wide,
60 short-term and minor adverse impacts to Wildlife
61 and Wildlife Habitat from construction of new
62 interpretive features, enhanced interpretation, trail
63 expansion, restoration of stream banks,
64 management strategies for Williams Pond and the
65 springs and streams, and management of the
66 woodland corridors surrounding the streams.
67 Cumulative effects would be park-wide, short-
68 term, minor and adverse.

69 **Impacts of Treatment Alternative 4 (Honor,** 70 **Commemoration, and Interpretation of the** 71 **Life and Legacy of George Washington** 72 **Carver by Employment of a Combination** 73 **of Agricultural Heritage and Exhibits of** 74 **Plants Known to Dr. Carver) on Wildlife** 75 **and Wildlife Habitat**

76 Changes in land cover, land use, management
77 practices, and the amount of impervious surface
78 that would occur in association with the proposed
79 alternatives have been considered for their
80 potential to impact wildlife and wildlife habitat at
81 the national monument. Implementing
82 construction of overflow parking, restoration of
83 the persimmon grove, expansion of the trail
84 system, and clearing or thinning of woodlands for
85 installation of plantings known to Carver would
86 impact wildlife and habitat due to short-term
87 displacement of vegetation and expanded
88 woodland management strategies. Use of best
89 management practices (BMPs) would be
90 implemented during construction and other soil

1 disturbing activities such as tree removal, to
 2 minimize impacts to wildlife habitat. Alternative 4
 3 would result in **park-wide, short-term, and**
 4 **minor adverse impacts** to Wildlife and Wildlife
 5 Habitat.

6 **Cumulative Impacts**

7 Past, present and reasonably foreseeable future
 8 actions are described under “Cumulative Impacts
 9 for Alternative 1 (No Action).” The overall
 10 cumulative impacts to Wildlife and Wildlife
 11 Habitat from Alternative 4 in combination with
 12 past, present, and reasonably foreseeable future
 13 actions would be park-wide, short-term, minor
 14 and adverse.

15 **Conclusion**

16 Treatment Alternative 4 would have park-wide,
 17 short-term and minor adverse impacts to Wildlife
 18 and Wildlife Habitat from construction of new
 19 interpretive features, enhanced interpretation, trail
 20 expansion, restoration of stream banks,
 21 management strategies for Williams Pond and the
 22 springs and streams, and management of the
 23 woodland corridors surrounding the streams.
 24 Cumulative effects would be park-wide, short-
 25 term, minor and adverse.

26 **6.4.5 Rare, Threatened, and**
 27 **Endangered Species**

28 **Impact Intensity Thresholds**

29 There are no federally endangered or threatened
 30 species known to occur within George
 31 Washington Carver National Monument,
 32 although several state-listed species of special
 33 concern have been documented within the site.
 34 One rare fish species – the Arkansas Darter- has
 35 been a candidate for federal listing as a threatened
 36 or endangered species and is considered a species
 37 of conservation concern by the State of Missouri.

38 Impact analysis for rare, threatened and
 39 endangered species was based on informal
 40 consultation with U.S. Fish and Wildlife Service
 41 and previous studies completed for the park.
 42 Changes in land cover, land use, vegetation
 43 management practices, and the amount of
 44 impervious surface that would occur in association

45 with the proposed alternatives have been
 46 considered for their potential to impact candidates
 47 for Federal listing and also species of concern. The
 48 thresholds of change for the intensity of an impact
 49 on rare, threatened and endangered species are
 50 defined as follows in Table 6-5.

51 **Table 6-5. Rare, Threatened, and**
 52 **Endangered Species Impact and Intensity**

Impact Intensity	Intensity Description
Negligible	Rare, threatened, or endangered species and their associated habitats would not be impacted, or the impacts would be at or below the level of detection and would not be measurable or of perceptible consequence to plant or animal populations.
Minor	Adverse impacts on plants, wildlife, or associated habitats would be measurable or perceptible, but localized within a small area. For adverse impacts, the mortality of an individual plant or animal might occur but the viability of biotic populations of concern would not be impacted, and the community, if left alone, would recover.
Moderate	A change to plant or wildlife populations or their associated habitat would occur over a relatively large area. The change would be readily measurable in terms of abundance, distribution, quantity, or quality of population. Mitigation measures would be necessary to offset adverse impacts, and they would likely be successful.
Major	Impacts on terrestrial wildlife populations or habitat would be readily apparent, and would substantially change wildlife populations over a large area in and out of the park. Extensive mitigation would be needed to offset adverse impacts, and the success of mitigation measures could not be ensured.

53

**1 Impacts of Alternative 1 Preserve Existing
2 Conditions and Continue Current
3 Management Strategies (No Action) on
4 Rare, Threatened, and Endangered Species**

5 Under Alternative 1 (No Action), there would be
6 little change in park character and management.
7 Existing habitat would remain in place and
8 continue to support populations of birds,
9 mammals, reptiles and fish that currently inhabit
10 the site and the water resources on the site. Quality
11 of the water is most important to the identified
12 species of fish, the Arkansas darter, as a candidate
13 for federal listing and a species of concern in the
14 state of Missouri. There would be no changes to
15 vegetation or new construction projects
16 generating expanded storm water runoff to the
17 streams. A strategy would need to be put in place
18 in order to address the condition of the stream
19 banks as erosion and runoff could affect water
20 quality and the Arkansas darter habitat.

21 Overall this alternative would have *local, long-
22 term, negligible, adverse impact* on rare,
23 threatened, and endangered species.

24 Cumulative Impacts

25 Past, present, and reasonably foreseeable future
26 actions would have local, short-term, and minor
27 adverse impacts on Rare, Threatened and
28 Endangered Species. Some of these actions
29 include: routine utility repair, replacement, and
30 new installation; small scale construction and
31 excavation for fulfillment of accessibility
32 requirements across the park; and present and
33 future management and maintenance strategies for
34 turf, prairie restoration, and conservation and
35 management of the streams and Williams Pond.
36 The overall cumulative impacts to Rare,
37 Threatened and Endangered Species from the “No
38 Action” alternative in combination with the past,
39 present, and reasonably foreseeable future actions
40 would be local, short-term, minor and adverse.

41 Conclusions

42 The No Action Alternative would have local, long-
43 term, negligible adverse impacts on Rare,
44 Threatened, and Endangered Species. Cumulative

45 effects would be local, short-term, minor and
46 adverse.

**47 Impacts of Elements Common to the
48 Action Alternatives on Rare, Threatened,
49 and Endangered Species**

50 The following proposed actions would impact
51 rare, threatened, and endangered species at
52 George Washington Carver National Monument
53 and are common to all the action alternatives:

- 54 ▪ Management of woodlands to remove invasive
55 species and enhance interpretation from
56 expanded trails
- 57 ▪ Natural resource management of restored
58 grassland prairie for health, diversity, and soil
59 and water conservation
- 60 ▪ Preservation, management, and interpretation
61 of Carver Spring and the three streams:
62 Carver, Harkins, and Williams branches
- 63 ▪ Maintenance and management of the wet
64 prairie areas located in the southwest and
65 south central areas of the national monument
66 to promote continued diversity of species and
67 community composition found only in
68 seasonally wet areas
- 69 ▪ Maintenance and management of Harkins
70 Woods
- 71 ▪ Conversion of the 30-acre parcel acquired by
72 the park in 2006 to prairie to incorporate it
73 into the overall approach to landcover
74 management
- 75 ▪ Preservation, maintenance, and management
76 of the cultural vegetation that contributes to
77 the National Register significance of the park
78 including: replanted walnut hedgerow along
79 the Carver Trail near the Carver family
80 cemetery; ornamental plantings at the park
81 former residential complex; and the picnic
82 grove shade trees
- 83 ▪ Preservation and maintenance of conservation
84 land uses in order to protect natural resources

1 of high quality and value, including native
2 plant communities and water resources

- 3 ■ Development of overflow parking area in the
4 core developed area on the site of the former
5 residential/storage structures after planned
6 demolition
- 7 ■ Restoration of the persimmon grove along the
8 existing Carver Trail
- 9 ■ Consolidation of the picnic areas into one
10 large space in the existing picnic area north of
11 the entrance road
- 12 ■ Expansion of the trail system to enhance
13 interpretation of the entire site
- 14 ■ Provision of universal accessibility to all
15 buildings and structures as well as features
16 associated with the primary interpretive
17 experience, following the guidelines set forth
18 in the *George Washington Carver National
19 Monument: Accessibility Debriefing Report and
20 Final Report* (NPS 2014)
- 21 ■ Stabilization, maintenance, and considered
22 restoration of the Carver family cemetery wall
23 to reflect intended squared off stone stacking
24 methods and the original eastern opening for
25 access

26 Implementing construction of overflow parking,
27 restoration of the persimmon grove, removal of
28 invasive species, and expansion of the trail system
29 would result in *local, short-term, minor, adverse*
30 *impacts to rare, threatened and endangered species*,
31 because some vegetation including invasive species
32 in stream corridors would be displaced, exposed
33 or disturbed. Use of best management practices
34 (BMPs) would be implemented during
35 construction and other soil disturbing activities
36 such as tree and vegetation removal, to minimize
37 impacts to water and terrestrial habitats of rare,
38 threatened, and endangered species. *Long term,*
39 *moderate, beneficial, impacts* to rare, threatened,
40 and endangered species would occur with the
41 implementation of the preservation, management
42 and maintenance strategies for conservation land

43 use, wet prairie areas, water resources, and
44 restoration of the grassland prairie.

45 **Impacts of Treatment Alternative 2** 46 **(Rehabilitation of the Landscape, including** 47 **Limited Restoration, For Interpretation to** 48 **Memorialize the Life and Achievements of** 49 **George Washington Carver on Rare,** 50 **Threatened, and Endangered Species**

51 There are no federally endangered or threatened
52 species known to occur within George
53 Washington Carver National Monument,
54 although several state-listed species of special
55 concern have been documented within the site.
56 One rare fish species – the Arkansas Darter- has
57 been a candidate for federal listing as a threatened
58 or endangered species and is considered a species
59 of conservation concern by the State of Missouri.
60 Implementing construction of overflow parking,
61 restoration of the persimmon grove, removal of
62 invasive species, expanded woodland
63 management, and stream, spring and pond
64 management, would result in potential impacts
65 due to displacement of vegetation along stream
66 corridors and subsequent effects on water quality.
67 Use of best management practices (BMPs) would
68 be implemented during construction and other
69 soil disturbing activities such as tree and
70 vegetation removal, to minimize impacts to water
71 and terrestrial habitats of rare, threatened, and
72 endangered species. Alternative 2 would result in
73 *local, short-term, minor, adverse impacts to*
74 *Rare, Threatened and Endangered Species.*

75 **Cumulative Impacts**

76 Past, present and reasonably foreseeable future
77 actions are described under “Cumulative Impacts
78 for Alternative 1 (No Action).” The overall
79 cumulative impacts to Rare, Threatened, and
80 Endangered Species from Alternative 2 in
81 combination with past, present, and reasonably
82 foreseeable future actions would be local, short-
83 term, minor and adverse.

84 **Conclusion**

85 Treatment Alternative 2 would have local, short-
86 term and minor adverse impacts to from
87 construction of new interpretive features,

1 enhanced interpretation, trail expansion,
 2 restoration of stream banks, management
 3 strategies for Williams Pond and the springs and
 4 streams, and management of the woodland
 5 corridors surrounding the streams. Cumulative
 6 effects would be local, short-term, minor and
 7 adverse.

8 **Impacts of Treatment Alternative 3**
 9 **(Interpretation and Celebration of the Life**
 10 **and Work of George Washington Carver**
 11 **Using an Ethnobotanical Approach) on**
 12 **Rare, Threatened, and Endangered Species**

13 There are no federally endangered or threatened
 14 species known to occur within George
 15 Washington Carver National Monument,
 16 although several state-listed species of special
 17 concern have been documented within the site.
 18 One rare fish species – the Arkansas Darter- has
 19 been a candidate for federal listing as a threatened
 20 or endangered species and is considered a species
 21 of conservation concern by the State of Missouri.
 22 Implementing construction of overflow parking,
 23 restoration of the persimmon grove, removal of
 24 invasive species, expanded woodland
 25 management, and stream, spring and pond
 26 management, would result in potential impacts
 27 due to displacement of vegetation along stream
 28 corridors and subsequent effects on water quality.
 29 Use of best management practices (BMPs) would
 30 be implemented during construction and other
 31 soil disturbing activities such as tree and
 32 vegetation removal, to minimize impacts to water
 33 and terrestrial habitats of rare, threatened, and
 34 endangered species. Alternative 3 would result in
 35 *local, short-term, minor, adverse impacts on*
 36 *Rare, Threatened and Endangered Species.*

37 **Cumulative Impacts**

38 Past, present and reasonably foreseeable future
 39 actions are described under “Cumulative Impacts
 40 for Alternative 1 (No Action).” The overall
 41 cumulative impacts to Rare, Threatened, and
 42 Endangered Species from Alternative 3 in
 43 combination with past, present, and reasonably
 44 foreseeable future actions would be local, short-
 45 term, minor and adverse.

46 **Conclusion**

47 Treatment Alternative 3 would have local, short-
 48 term and minor adverse impacts to from
 49 construction of new interpretive features,
 50 enhanced interpretation, trail expansion,
 51 restoration of stream banks, management
 52 strategies for Williams Pond and the springs and
 53 streams, and management of the woodland
 54 corridors surrounding the streams. Cumulative
 55 effects would be local, short-term, minor and
 56 adverse.

57 **Impacts of Treatment Alternative 4 (Honor,**
 58 **Commemoration, and Interpretation of the**
 59 **Life and Legacy of George Washington**
 60 **Carver by Employment of a Combination**
 61 **of Agricultural Heritage and Exhibits of**
 62 **Plants Known to Dr. Carver) on Rare,**
 63 **Threatened, and Endangered Species**

64 There are no federally endangered or threatened
 65 species known to occur within George
 66 Washington Carver National Monument,
 67 although several state-listed species of special
 68 concern have been documented within the site.
 69 One rare fish species – the Arkansas Darter- has
 70 been a candidate for federal listing as a threatened
 71 or endangered species and is considered a species
 72 of conservation concern by the State of Missouri.
 73 Implementing construction of overflow parking,
 74 restoration of the persimmon grove, removal of
 75 invasive species, expanded woodland
 76 management, and stream, spring and pond
 77 management, would result in potential impacts
 78 due to displacement of vegetation along stream
 79 corridors and subsequent effects on water quality.
 80 Use of best management practices (BMPs) would
 81 be implemented during construction and other
 82 soil disturbing activities such as tree and
 83 vegetation removal, to minimize impacts to water
 84 and terrestrial habitats of rare, threatened, and
 85 endangered species. Alternative 4 would result in
 86 *local, short-term, minor, adverse impacts to*
 87 *Rare, Threatened and Endangered Species.*

88 **Cumulative Impacts**

89 Past, present and reasonably foreseeable future
 90 actions are described under “Cumulative Impacts
 91 for Alternative 1 (No Action).” The overall

1 cumulative impacts to Rare, Threatened, and
 2 Endangered Species from Alternative 4 in
 3 combination with past, present, and reasonably
 4 foreseeable future actions would be local, short-
 5 term, minor and adverse.

6 **Conclusion**

7 Treatment Alternative 4 would have local, short-
 8 term and minor adverse impacts to Rare,
 9 Threatened, and Endangered Species from
 10 construction of new interpretive features,
 11 enhanced interpretation, trail expansion,
 12 restoration of stream banks, management
 13 strategies for Williams Pond and the springs and
 14 streams, and management of the woodland
 15 corridors surrounding the streams. Cumulative
 16 effects would be local, short-term, minor and
 17 adverse.

18 **6.4.6 Wetlands**

19 **Impact Intensity Threshold**

20 Several areas of George Washington Carver
 21 National Monument experience wet conditions
 22 throughout much of the year. This is true for
 23 identified wet prairie areas located in the
 24 southwest and south-central areas of the park, and
 25 are particularly notable due to the diversity of
 26 plants that are only found in damp areas. Williams
 27 Pond, although an artificially created
 28 impoundment, is a site that has become the
 29 “repository” for some of the most unique plants
 30 within the Monument site. No wetlands on the site
 31 appear on the National Wetlands Inventory
 32 (NWI) mapping conducted by the U.S. Fish and
 33 Wildlife Service.

34 Impact analysis on significant wet prairie areas of
 35 the site and Williams Pond was based on previous
 36 studies by Heartland I&M Network National
 37 Monument and the *Resources Management Plan*
 38 (NPS 1999). Changes in land cover, management
 39 practices, and the amount of impervious surface
 40 that would occur in association with the proposed
 41 alternatives have been considered for their
 42 potential to impact the significant prairie wet areas
 43 and Williams Pond. The thresholds of change for
 44 the intensity of an impact on wetlands are defined
 45 as follows in Table 6-6.

46 **Table 6-6. Wetlands Impact and Intensity**

Impact Intensity	Intensity Description
Negligible	Impacts to wetlands would be below or at the lower levels of detection.
Minor	Impacts to wetlands would be detectable and relatively small in terms of area and the nature of change. The actions would impact a limited number of individual plant or wildlife species within the wetlands.
Moderate	The impacts to wetlands would be readily apparent over a relatively small area, but the impact could be mitigated by restoring previously degraded wetlands. The action would have a measurable impact on plant or wildlife species within the wetlands, but all species would remain indefinitely viable.
Major	The impacts to wetlands would be readily apparent over a relatively large area. The action would have measurable consequences for the wetland area that could not be mitigated. Wetland species dynamics would be upset, and plant and/or animal species would be at risk of extirpation for the area.

47

48 **Impacts of Alternative 1 Preserve Existing**
 49 **Conditions and Continue Current**
 50 **Management Strategies (No Action) on**
 51 **Wetlands**

52 There are identified wet prairie areas located in
 53 the southwest and south-central areas of the
 54 national monument, and are particularly notable
 55 due to the diversity of plants that are only found in
 56 damp areas. Williams Pond, has become the
 57 “repository” for some of the most unique plants
 58 within the Monument site. Many species of sedges
 59 and grasses, as well as forbs are found only in these
 60 areas. Under this alternative, these wetland prairie
 61 areas and Williams Pond are part of the ongoing
 62 natural resource management programs in place at
 63 George Washington Carver National Monument.
 64 Current strategies do not fully address the
 65 comprehensive management and maintenance of
 66 Williams Pond, which could result in minor
 67 disturbance to plant species around the pond. The
 68 wetland prairie areas and associated wetland
 69 plants would be preserved and protected by

1 current management strategies in the Prairie
 2 Restoration and Management Plan. Overall this
 3 alternative would have *local, short-term,*
 4 *negligible, adverse impact* on wetlands.

5 **Cumulative Impacts**

6 Past, present, and reasonably foreseeable future
 7 actions would have local, short-term, and minor
 8 adverse impacts on wetlands. Some of these
 9 actions include: routine utility repair, replacement,
 10 and new installation; small scale construction and
 11 excavation for fulfillment of accessibility
 12 requirements across the park; and present and
 13 future management and maintenance strategies for
 14 turf, prairie restoration, and conservation and
 15 management of the streams and Williams Pond.
 16 The overall cumulative impacts to wetlands from
 17 the “No Action” alternative in combination with
 18 the past, present, and reasonably foreseeable
 19 future actions would be local, short-term, minor
 20 and adverse.

21 **Conclusions**

22 The No Action Alternative would have local,
 23 short-term, negligible adverse impacts on
 24 Wetlands. Cumulative effects would be local,
 25 short-term, minor and adverse.

26 **Impacts of Elements Common to the**
 27 **Action Alternatives on Wetlands**

28 The following proposed actions would impact
 29 wetlands at George Washington Carver National
 30 Monument and are common to all the action
 31 alternatives:

- 32 ■ Management of woodlands to remove invasive
 33 species and enhance interpretation from
 34 expanded trails
- 35 ■ Natural resource management of restored
 36 grassland prairie for health, diversity, and soil
 37 and water conservation
- 38 ■ Preservation, management, and interpretation
 39 of Carver Spring and the three streams:
 40 Carver, Harkins, and Williams branches
- 41 ■ Maintenance and management of the wet
 42 prairie areas located in the southwest and

43 south central areas of the national monument
 44 to promote continued diversity of species and
 45 community composition found only in
 46 seasonally wet areas

- 47 ■ Maintenance and management of Harkins
 48 Woods
- 49 ■ Conversion of the 30-acre parcel acquired by
 50 the park in 2006 to prairie to incorporate it
 51 into the overall approach to landcover
 52 management
- 53 ■ Preservation, maintenance, and management
 54 of the cultural vegetation that contributes to
 55 the National Register significance of the park
 56 including: replanted walnut hedgerow along
 57 the Carver Trail near the Carver family
 58 cemetery; ornamental plantings at the park
 59 former residential complex; and the picnic
 60 grove shade trees
- 61 ■ Preservation and maintenance of conservation
 62 land uses in order to protect natural resources
 63 of high quality and value, including native
 64 plant communities and water resources
- 65 ■ Development of overflow parking area in the
 66 core developed area on the site of the former
 67 residential/storage structures after planned
 68 demolition
- 69 ■ Restoration of the persimmon grove along the
 70 existing Carver Trail
- 71 ■ Consolidation of the picnic areas into one
 72 large space in the existing picnic area north of
 73 the entrance road
- 74 ■ Expansion of the trail system to enhance
 75 interpretation of the entire site
- 76 ■ Provision of universal accessibility to all
 77 buildings and structures as well as features
 78 associated with the primary interpretive
 79 experience, following the guidelines set forth
 80 in the *George Washington Carver National*
 81 *Monument: Accessibility Debriefing Report and*
 82 *Final Report* (NPS 2014)

- 1 ▪ Stabilization, maintenance, and considered
2 restoration of the Carver family cemetery wall
3 to reflect intended squared off stone stacking
4 methods and the original eastern opening for
5 access

6 Implementing some proposed construction or
7 management strategies, would result in *short-term*,
8 *minor, adverse impacts* to wetlands during
9 implementation. Continued natural resource
10 management of restored grassland prairie for
11 health, diversity, and soil and water conservation
12 and management of woodlands to remove invasive
13 species and other expanded natural and cultural
14 resource preservation, management, and
15 maintenance strategies would result in *long-term*,
16 *moderate, beneficial impacts* to wetlands.

17 **Impacts of Treatment Alternative 2**
18 **(Rehabilitation of the Landscape, including**
19 **Limited Restoration, For Interpretation to**
20 **Memorialize the Life and Achievements of**
21 **George Washington Carver on Wetlands**

22 There are identified wet prairie areas located in
23 the southwest and south-central areas of the
24 national monument, and are particularly notable
25 due to the diversity of plants that are only found in
26 damp areas. Williams Pond, has become the
27 “repository” for some of the most unique plants
28 within the Monument site. Many species of sedges
29 and grasses, as well as forbs are found only in these
30 areas. In Alternative 2, these wetland prairie areas
31 and Williams Pond are preserved and managed
32 under the existing strategies for the prairie
33 restoration. Land use in the area of the wetlands
34 does not change in this Alternative. Alternative 2
35 would have a **local, short-term and negligible**
36 **adverse impact** on wetlands.

37 **Cumulative Impacts**

38 Past, present and reasonably foreseeable future
39 actions are described under “Cumulative Impacts
40 for Alternative 1 (No Action).” The overall
41 cumulative impacts to Wetlands from Alternative 2
42 in combination with past, present, and reasonably
43 foreseeable future actions would be local, short-
44 term, minor and adverse.

45 **Conclusion**

46 Treatment Alternative 2 would have local, short-
47 term, and negligible adverse impacts on Wetlands
48 from established prairie management strategies.
49 Cumulative effects would be local, short-term,
50 minor and adverse.

51 **Impacts of Treatment Alternative 3**
52 **(Interpretation and Celebration of the Life**
53 **and Work of George Washington Carver**
54 **Using an Ethnobotanical Approach) on**
55 **Wetlands**

56 There are identified wet prairie areas located in
57 the southwest and south-central areas of the
58 national monument, and are particularly notable
59 due to the diversity of plants that are only found in
60 damp areas. Williams Pond, has become the
61 “repository” for some of the most unique plants
62 within the Monument site. Many species of sedges
63 and grasses, as well as forbs are found only in these
64 areas. Under this alternative, these wetland prairie
65 areas and Williams Pond are part of the ongoing
66 natural resource management programs in place at
67 George Washington Carver National Monument.
68 Land use in the area of the wetlands does not
69 change in this Alternative. Alternative 3 would
70 have a **local, short-term and negligible adverse**
71 **impact** on wetlands.

72 **Cumulative Impacts**

73 Past, present and reasonably foreseeable future
74 actions are described under “Cumulative Impacts
75 for Alternative 1 (No Action).” The overall
76 cumulative impacts to Wetlands from Alternative 3
77 in combination with past, present, and reasonably
78 foreseeable future actions would be local, short-
79 term, minor and adverse.

80 **Conclusion**

81 Treatment Alternative 3 would have local, short-
82 term, and negligible adverse impacts on Wetlands
83 from established prairie management strategies.
84 Cumulative effects would be local, short-term,
85 minor and adverse.

1 **Impacts of Treatment Alternative 4 (Honor,**
 2 **Commemoration, and Interpretation of the**
 3 **Life and Legacy of George Washington**
 4 **Carver by Employment of a Combination**
 5 **of Agricultural Heritage and Exhibits of**
 6 **Plants Known to Dr. Carver) on Wetlands**

7 There are identified wet prairie areas located in
 8 the southwest and south-central areas of the
 9 national monument, and are particularly notable
 10 due to the diversity of plants that are only found in
 11 damp areas. Williams Pond, has become the
 12 “repository” for some of the most unique plants
 13 within the Monument site. Many species of sedges
 14 and grasses, as well as forbs are found only in these
 15 areas. In Alternative 4, the wetland prairie areas in
 16 unit 6 would be impacted by a change in prairie
 17 management. This unit will be mown hay and
 18 interpreted as part of preservation of the agrarian
 19 setting. The wetland plant diversity will be
 20 preserved, but short-term impacts may occur.
 21 Alternative 4 would have **local, short-term and**
 22 **minor adverse impacts** to wetlands.

23 **Cumulative Impacts**

24 Past, present and reasonably foreseeable future
 25 actions are described under “Cumulative Impacts
 26 for Alternative 1 (No Action).” The overall
 27 cumulative impacts to Wetlands from Alternative 4
 28 in combination with past, present, and reasonably
 29 foreseeable future actions would be local, short-
 30 term, minor and adverse.

31 **Conclusion**

32 Treatment Alternative 4 would have local, short-
 33 term, and minor adverse impacts on Wetlands
 34 from strategies for prairie management, including
 35 the mown hayfields in unit 6. Cumulative effects
 36 would be local, short-term, minor and adverse.

37

38 **6.4.7 Floodplains**

39 **Impact Intensity Threshold**

40 There are three stream branches located within
 41 George Washington Carver National Monument.
 42 There is a great potential for flooding along Carver
 43 Branch, with the extensive agricultural use within
 44 its 3-mile drainage area and the 100-foot elevation
 45 drop between its source and the park entrance.
 46 Current laws and policies require that the
 47 following conditions be achieved in the national
 48 monument: minimize destruction, loss, or
 49 degradation of wetlands and floodplains; and
 50 preserve their natural and beneficial values. NPS
 51 has adopted a policy of preserving floodplain
 52 values and minimizing potentially hazardous
 53 conditions associated with flooding (NPS 2003).

54 Impact analysis on significant floodplains
 55 associated with the three stream branches that
 56 occur within George Washington Carver National
 57 Monument was based on previous studies by
 58 Heartland I&M Network National Monument,
 59 the *Resources Management Plan* (NPS 1999) and
 60 numerous other natural resource studies. Changes
 61 in land cover, management practices, and the
 62 amount of impervious surface that would occur in
 63 association with the proposed alternatives have
 64 been considered for their potential to impact
 65 floodplains within the national monument. The
 66 thresholds of change for the intensity of an impact
 67 are defined as follows in Table 6-7.

68

1 **Table 6-7. Floodplains Impact and Intensity**

Impact Intensity	Intensity Description
Negligible	Changes in the ability of a floodplain to convey floodwaters, or its values and functions would be undetectable. Project would not contribute to enhancing flood events.
Minor	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local. Projects could contribute to the flood. The impact could be mitigated by modification of proposed facilities in floodplains.
Moderate	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and local. Projects could contribute to the flood. The impact could be mitigated by modification of proposed facilities in floodplains.
Major	Changes in the ability of a floodplain to convey floodwaters, or its values and functions, would be measurable and widespread. Projects would contribute to the flood. The impact could not be mitigated by modification of proposed facilities in floodplains.

2

3 **Impacts of Alternative 1 Preserve Existing**
 4 **Conditions and Continue Current**
 5 **Management Strategies (No Action) on**
 6 **Floodplains**

7 Under Alternative 1 (No Action), protection of
 8 floodplains will continue with the current
 9 management and maintenance strategies in place.
 10 The current landscape patterns of spatial
 11 organization composed in part by riparian
 12 woodlands along stream corridors and
 13 floodplains, will also be perpetuated. The Williams
 14 Pond would remain in its current configuration.
 15 Maintenance of existing water systems and
 16 features would continue as well as protection of
 17 water resources. Under this alternative, there
 18 would remain no comprehensive management
 19 strategy that would address the stabilization of the
 20 stream banks or the removal of invasive species or
 21 other dead or unhealthy vegetation within the
 22 floodplains of the streams and springs. Also under
 23 this alternative, expanded management or
 24 maintenance for Williams Pond is not addressed.

25 Overall this alternative would have *local, long-*
 26 *term, minor, adverse impact* on floodplains.

27 **Cumulative Impacts**

28 Past, present, and reasonably foreseeable future
 29 actions would have local, short-term, and minor
 30 adverse impacts on floodplains. Some of these
 31 actions include: routine utility repair, replacement,
 32 and new installation; small scale construction and
 33 excavation for fulfillment of accessibility
 34 requirements across the park; and present and
 35 future management and maintenance strategies for
 36 turf, prairie restoration, and conservation and
 37 management of the streams and Williams Pond.
 38 The overall cumulative impacts to floodplains
 39 from the “No Action” alternative in combination
 40 with the past, present, and reasonably foreseeable
 41 future actions would be local, short-term, minor
 42 and adverse.

43 **Conclusions**

44 The No Action Alternative would have local, long-
 45 term, minor adverse impacts on Wetlands.
 46 Cumulative effects would be local, long-term,
 47 minor and adverse.

48 **Impacts of Elements Common to the**
 49 **Action Alternatives on Floodplains**

50 The following proposed actions would impact
 51 floodplains at George Washington Carver
 52 National Monument and are common to all the
 53 action alternatives:

- 54 ■ Management of woodlands to remove invasive
 55 species and enhance interpretation from
 56 expanded trails
- 57 ■ Natural resource management of restored
 58 grassland prairie for health, diversity, and soil
 59 and water conservation
- 60 ■ Preservation, management, and interpretation
 61 of Carver Spring and the three streams:
 62 Carver, Harkins, and Williams branches
- 63 ■ Maintenance and management of the wet
 64 prairie areas located in the southwest and
 65 south central areas of the national monument
 66 to promote continued diversity of species and

- 1 community composition found only in
2 seasonally wet areas
- 3 ■ Maintenance and management of Harkins
4 Woods
 - 5 ■ Conversion of the 30-acre parcel acquired by
6 the park in 2006 to prairie to incorporate it
7 into the overall approach to landcover
8 management
 - 9 ■ Preservation, maintenance, and management
10 of the cultural vegetation that contributes to
11 the National Register significance of the park
12 including: replanted walnut hedgerow along
13 the Carver Trail near the Carver family
14 cemetery; ornamental plantings at the park
15 former residential complex; and the picnic
16 grove shade trees
 - 17 ■ Preservation and maintenance of conservation
18 land uses in order to protect natural resources
19 of high quality and value, including native
20 plant communities and water resources.
 - 21 ■ Development of overflow parking area in the
22 core developed area on the site of the former
23 residential/storage structures after planned
24 demolition
 - 25 ■ Restoration of the persimmon grove along the
26 existing Carver Trail
 - 27 ■ Consolidation of the picnic areas into one
28 large space in the existing picnic area north of
29 the entrance road
 - 30 ■ Expansion of the trail system to enhance
31 interpretation of the entire site
 - 32 ■ Provision of universal accessibility to all
33 buildings and structures as well as features
34 associated with the primary interpretive
35 experience, following the guidelines set forth
36 in the *George Washington Carver National
37 Monument: Accessibility Debriefing Report and
38 Final Report* (NPS 2014)
 - 39 ■ Stabilization, maintenance, and considered
40 restoration of the Carver family cemetery wall

41 to reflect intended squared off stone stacking
42 methods and the original eastern opening for
43 access

44 Implementing some proposed construction or
45 management strategies, would result in *local, short-*
46 *term, minor, adverse impacts* to floodplains during
47 implementation. Continued natural resource
48 management of restored grassland prairie for
49 health, diversity, and soil and water conservation
50 and management of woodlands to remove invasive
51 species and other expanded natural and cultural
52 resource preservation, management, and
53 maintenance strategies would result in *long-term,*
54 *moderate, beneficial impacts* to floodplains.

55 **Impacts of Treatment Alternative 2**
56 **(Rehabilitation of the Landscape, including**
57 **Limited Restoration, For Interpretation to**
58 **Memorialize the Life and Achievements of**
59 **George Washington Carver on Floodplains**

60 Under Alternative 2 there would be stream bank
61 restoration and management of corridor
62 woodlands along the streams and into the
63 floodplain. The current landscape patterns of
64 spatial organization composed in part by riparian
65 woodlands along stream corridors and
66 floodplains, will also be perpetuated. The Williams
67 Pond would remain in its current configuration.
68 Maintenance of existing water systems and
69 features would continue as well as protection of
70 water resources. Under this alternative, there
71 would be a comprehensive management strategy
72 that would address the stabilization of the stream
73 banks and the removal of invasive species or other
74 dead or unhealthy vegetation within the
75 floodplains of the streams and springs. Also under
76 this alternative, expanded management and
77 maintenance for Williams Pond is addressed.
78 Overall this alternative would have *local, long-*
79 *term, moderate, and beneficial impact* on
80 Floodplains.

81 **Cumulative Impacts**

82 Past, present and reasonably foreseeable future
83 actions are described under “Cumulative Impacts
84 for Alternative 1 (No Action).” The overall
85 cumulative impacts to Floodplains from
86 Alternative 2 in combination with past, present,

1 and reasonably foreseeable future actions would
2 be local, long-term, moderate and beneficial.

3 **Conclusion**

4 Treatment Alternative 2 would have local, long-
5 term, and moderate beneficial impacts to
6 Floodplains from expanded natural resource
7 management of restored grassland prairie for
8 health, diversity, and soil and water conservation
9 and management of woodlands to remove invasive
10 species and other expanded natural and cultural
11 resource preservation, management, and
12 maintenance strategies. Cumulative effects would
13 be local, long-term, moderate and beneficial.

14 **Impacts of Treatment Alternative 3** 15 **(Interpretation and Celebration of the Life** 16 **and Work of George Washington Carver** 17 **Using an Ethnobotanical Approach) on** 18 **Floodplains**

19 Under Alternative 3 there would be stream bank
20 restoration and management of corridor
21 woodlands along the streams and into the
22 floodplain. The current landscape patterns of
23 spatial organization composed in part by riparian
24 woodlands along stream corridors and
25 floodplains, will also be perpetuated. The Williams
26 Pond would remain in its current configuration.
27 Maintenance of existing water systems and
28 features would continue as well as protection of
29 water resources. Under this alternative, there
30 would be a comprehensive management strategy
31 that would address the stabilization of the stream
32 banks and the removal of invasive species or other
33 dead or unhealthy vegetation within the
34 floodplains of the streams and springs. Also under
35 this alternative, expanded management and
36 maintenance for Williams Pond is addressed.
37 Overall this alternative would have *local, long-*
38 *term, moderate, and beneficial impact* on
39 Floodplains.

40 **Cumulative Impacts**

41 Past, present and reasonably foreseeable future
42 actions are described under “Cumulative Impacts
43 for Alternative 1 (No Action).” The overall
44 cumulative impacts to Floodplains from
45 Alternative 3 in combination with past, present,

46 and reasonably foreseeable future actions would
47 be local, long-term, moderate and beneficial.

48 **Conclusion**

49 Treatment Alternative 3 would have local, long-
50 term, and moderate beneficial impacts to
51 Floodplains from expanded natural resource
52 management of restored grassland prairie for
53 health, diversity, and soil and water conservation
54 and management of woodlands to remove invasive
55 species and other expanded natural and cultural
56 resource preservation, management, and
57 maintenance strategies. Cumulative effects would
58 be local, long-term, moderate and beneficial.

59 **Impacts of Treatment Alternative 4 (Honor,** 60 **Commemoration, and Interpretation of the** 61 **Life and Legacy of George Washington** 62 **Carver by Employment of a Combination** 63 **of Agricultural Heritage and Exhibits of** 64 **Plants Known to Dr. Carver) on Floodplains**

65 Under Alternative 4 there would be stream bank
66 restoration and management of corridor
67 woodlands along the streams and into the
68 floodplain. The current landscape patterns of
69 spatial organization composed in part by riparian
70 woodlands along stream corridors and
71 floodplains, will also be perpetuated. The Williams
72 Pond would remain in its current configuration.
73 Maintenance of existing water systems and
74 features would continue as well as protection of
75 water resources. Under this alternative, there
76 would be a comprehensive management strategy
77 that would address the stabilization of the stream
78 banks and the removal of invasive species or other
79 dead or unhealthy vegetation within the
80 floodplains of the streams and springs. Also under
81 this alternative, expanded management and
82 maintenance for Williams Pond is addressed.
83 Overall this alternative would have *local, long-*
84 *term, moderate, and beneficial impact* on
85 Floodplains.

86 **Cumulative Impacts**

87 Past, present and reasonably foreseeable future
88 actions are described under “Cumulative Impacts
89 for Alternative 1 (No Action).” The overall
90 cumulative impacts to Floodplains from

1 Alternative 4 in combination with past, present,
 2 and reasonably foreseeable future actions would
 3 be local, long-term, moderate and beneficial.

4 **Conclusion**

5 Treatment Alternative 4 would have local, long-
 6 term, and moderate beneficial impacts to
 7 Floodplains from expanded natural resource
 8 management of restored grassland prairie for
 9 health, diversity, and soil and water conservation
 10 and management of woodlands to remove invasive
 11 species and other expanded natural and cultural
 12 resource preservation, management, and
 13 maintenance strategies. Cumulative effects would
 14 be local, long-term, moderate and beneficial.

15 **6.5 Cultural Resources**

16 **6.5.1 Cultural Landscapes**

17 **Impact Intensity Threshold**

18 In order for a cultural landscape to be listed in the
 19 National Register, it must possess significance (the
 20 meaning or value ascribed to the landscape) and
 21 retain the integrity of those features necessary to
 22 convey its significance as well as meet one or more
 23 of National Register criteria (36 CFR 63). The
 24 character-defining features in the identified
 25 cultural landscape included spatial organization
 26 and land patterns, topography, vegetation,
 27 circulation patterns, water features,
 28 structures/buildings, and site furnishings and
 29 objects. Individual features are not examined
 30 alone, but in relation to the overall landscape. The
 31 arrangement and interrelationship of the cultural
 32 landscape’s organizational elements and
 33 character-defining features provided the key to
 34 determination of potential impacts and effects of
 35 the proposed actions presented in the project
 36 alternatives. The thresholds of change for the
 37 intensity of an impact on cultural landscapes are
 38 defined in Table 6-8.

40 **Table 6-8. Cultural Landscapes Impact and**
 41 **Intensity**

Impact Intensity	Intensity Description
Negligible	Impacts would be at the lowest level of detection with neither adverse nor beneficial consequences. The determination of effect for section 106 would be no adverse effect.
Minor	Alteration of a historic structure or a pattern(s) or features(s) of the landscape would not diminish the overall integrity of the resource. The determination of effect for Section 106 would be no adverse effect.
Moderate	Alteration of a historic structure or a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the resource. The determination of effect for Section 106 would be adverse effect. A programmatic agreement is executed among the NPS and applicable state or tribal historic preservation officer and, if necessary, the advisory council, in accordance with 36 CFR 800.6(b). Measures identified in the programmatic agreement to minimize or mitigate adverse impacts reduce the intensity of the impact and NEPA from moderate to minor.
Major	Alteration of a historic structure or a pattern(s) of the landscape would diminish the overall integrity of the resource. The determination of effect for Section 106 would be adverse effect. Measures to minimize or mitigate adverse impacts cannot be agreed on, and the NPS and applicable state or tribal historic preservation officer and/or advisory council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).

42

39

1 **Impacts of Alternative 1 Preserve Existing**
 2 **Conditions and Continue Current**
 3 **Management Strategies (No Action) on**
 4 **Cultural Landscapes**

5 Alternative 1, the No Action Alternative focuses
 6 on preservation of the existing character of the
 7 George Washington Carver National Monument
 8 landscape and current interpretive programs.
 9 Visitors would continue to gain the majority of
 10 their knowledge of the life and accomplishments
 11 of Dr. Carver through the exhibits located within
 12 the visitor center and along the mile-long Carver
 13 Trail. Under this alternative, no further
 14 exploration of ways to utilize the cultural
 15 landscape as a tool for interpreting Carver's life
 16 and accomplishments would be conducted. This
 17 alternative would limit the park in its ability to
 18 explain the historical context within which George
 19 Washington Carver grew up and his efforts to get
 20 an education. This alternative would also limit the
 21 park's ability to rehabilitate the landscape and its
 22 associated structures to enhance the memorial
 23 nature of the site. This alternative would have
 24 *park-wide, long-term, minor, adverse impact*
 25 *on cultural landscapes.*

26 For purposes of Section 106 compliance there
 27 would be *no adverse effect.*

28 **Cumulative Impacts**

29 Past, present, and reasonably foreseeable future
 30 actions would have local, short-term and
 31 negligible adverse impacts on cultural landscapes.
 32 Some of these actions include: continued prairie
 33 restoration and stabilization; small scale
 34 construction and excavation for fulfillment of
 35 accessibility requirements across the park; future
 36 preservation and interpretation management and
 37 changes, and conservation and management of the
 38 streams and Williams Pond. The overall
 39 cumulative impacts to cultural landscapes from the
 40 "No Action" alternative in combination with the
 41 past, present, and reasonably foreseeable future
 42 actions would be local, short-term, negligible and
 43 adverse.

44 **Conclusions**

45 The No Action Alternative would have park-wide,
 46 long-term, minor, adverse impacts on cultural
 47 landscapes. Cumulative effects would be local,
 48 short-term, negligible and adverse.

49 **Impacts of Elements Common to the**
 50 **Action Alternatives on Cultural Landscapes**

51 The following proposed actions would impact
 52 cultural landscapes at George Washington Carver
 53 National Monument and are common to all the
 54 action alternatives:

- 55 ▪ Management of woodlands to remove invasive
 56 species and enhance interpretation from
 57 expanded trails
- 58 ▪ Natural resource management of restored
 59 grassland prairie for health, diversity, and soil
 60 and water conservation
- 61 ▪ Preservation, management, and interpretation
 62 of Carver Spring and the three streams:
 63 Carver, Harkins, and Williams branches
- 64 ▪ Maintenance and management of the wet
 65 prairie areas located in the southwest and
 66 south central areas of the national monument
 67 to promote continued diversity of species and
 68 community composition found only in
 69 seasonally wet areas
- 70 ▪ Maintenance and management of Harkins
 71 Woods
- 72 ▪ Conversion of the 30-acre parcel acquired by
 73 the park in 2006 to prairie to incorporate it
 74 into the overall approach to landcover
 75 management
- 76 ▪ Preservation, maintenance, and management
 77 of the cultural vegetation that contributes to
 78 the National Register significance of the park
 79 including: replanted walnut hedgerow along
 80 the Carver Trail near the Carver family
 81 cemetery; ornamental plantings at the park
 82 former residential complex; and the picnic
 83 grove shade trees

- 1 ▪ Preservation and maintenance of conservation
2 land uses in order to protect natural resources
3 of high quality and value, including native
4 plant communities and water resources
 - 5 ▪ Development of overflow parking area in the
6 core developed area on the site of the former
7 residential/storage structures after planned
8 demolition
 - 9 ▪ Restoration of the persimmon grove along the
10 existing Carver Trail
 - 11 ▪ Consolidation of the picnic areas into one
12 large space in the existing picnic area north of
13 the entrance road
 - 14 ▪ Expansion of the trail system to enhance
15 interpretation of the entire site
 - 16 ▪ Provision of universal accessibility to all
17 buildings and structures as well as features
18 associated with the primary interpretive
19 experience, following the guidelines set forth
20 in the *George Washington Carver National*
21 *Monument: Accessibility Debriefing Report and*
22 *Final Report* (NPS 2014)
 - 23 ▪ Stabilization, maintenance, and considered
24 restoration of the Carver family cemetery wall
25 to reflect intended squared off stone stacking
26 methods and the original eastern opening for
27 access
- 28 Implementation of rehabilitation and management
29 strategies for land use, historic features, and
30 integration of the cultural landscape with park-
31 wide interpretation would be a *park-wide, long-*
32 *term, major beneficial impact* on the cultural
33 landscape. Actions common to the alternatives 2,
34 3, and 4 fall under the comprehensive treatment
35 approach of rehabilitation. Under the
36 rehabilitation treatment, stabilization, protection,
37 and preservation of historic and natural resources
38 are actions that must occur in order to allow for
39 the limited accommodation of new uses.

40 **Impacts of Treatment Alternative 2**
41 **(Rehabilitation of the Landscape, including**
42 **Limited Restoration, For Interpretation to**
43 **Memorialize the Life and Achievements of**
44 **George Washington Carver on Cultural**
45 **Landscapes**

46 This rehabilitation alternative suggests enhancing
47 the ability of the park to tell the story of George
48 Washington Carver’s experiences by re-
49 establishing and interpreting missing nineteenth
50 century features and lifeways. Features anticipated
51 to include are a persimmon grove, walnut tree
52 fence rows, fruit orchard, the farmstead area, the
53 rural agricultural setting, and hayfields. There
54 would be interpretation the accurate location of
55 the birthplace cabin and Moses Carver house and
56 farmstead based on further research and
57 investigation using foundation outlines and mow
58 patterns. This alternative would also include
59 thinning and management of woodland to depict
60 historic savanna-like character. These activities
61 would improve the cultural landscape and
62 establish a clear connection between Dr. Carver’s
63 life and achievements and the historic landscape of
64 the farm. Alternative 2 would have a **park-wide,**
65 **long-term, and major beneficial impact** on the
66 cultural landscape.

67 For purposes of Section 106 compliance there
68 would be *no adverse effect*.

69 **Cumulative Impacts**

70 Past, present and reasonably foreseeable future
71 actions are described under “Cumulative Impacts
72 for Alternative 1 (No Action).” The overall
73 cumulative impacts to cultural landscapes from
74 Alternative 2 in combination with past, present,
75 and reasonably foreseeable future actions would
76 be park-wide, long-term, major and beneficial.

77 **Conclusion**

78 Treatment Alternative 2 would have park-wide,
79 long-term and major beneficial impacts on cultural
80 landscapes from woodland management,
81 restoration and interpretation of former farm
82 features, and plant and interpretive installations.
83 Cumulative effects would be park-wide, long-
84 term, major and beneficial.

1 **Impacts of Treatment Alternative 3**
 2 **(Interpretation and Celebration of the Life**
 3 **and Work of George Washington Carver**
 4 **Using an Ethnobotanical Approach) on**
 5 **Cultural Landscapes**

6 The focus of this rehabilitation alternative would
 7 be the interpretation of George Washington
 8 Carver’s work and career through plants known to
 9 have been the focus of his experiments and
 10 scientific exploration. Plants would be featured
 11 along park trails to enhance interpretation of Dr.
 12 Carver’s achievements. Thinning and clearing of
 13 woodlands would occur to allow for the planting
 14 of ethno-botanical species such as the persimmon
 15 grove, known to the young Carver on the farm and
 16 used in his later experiments. There would also be
 17 expansion of the trail system into additional acres
 18 of the property to provide interpreted
 19 ethnobotanical plantings and an interpreted
 20 environmental trail through Harkins Woods.
 21 Alternative 3 would have a **park-wide, long-term,**
 22 **and moderate beneficial impact** on cultural
 23 landscapes.

24 For purposes of Section 106 compliance there
 25 would be *no adverse effect*.

26 **Cumulative Impacts**

27 Past, present and reasonably foreseeable future
 28 actions are described under “Cumulative Impacts
 29 for Alternative 1 (No Action).” The overall
 30 cumulative impacts to cultural landscapes from
 31 Alternative 3 in combination with past, present,
 32 and reasonably foreseeable future actions would
 33 be park-wide, long-term, moderate and beneficial.

34 **Conclusion**

35 Treatment Alternative 3 would have park-wide,
 36 long-term and moderate beneficial impacts on
 37 cultural landscapes from woodland management,
 38 ethnobotanical plantings and interpretation and
 39 trail expansion to include environmental
 40 interpretation in Harkins Woods. Cumulative
 41 effects would be park-wide, long-term, moderate
 42 and beneficial.

43 **Impacts of Treatment Alternative 4 (Honor,**
 44 **Commemoration, and Interpretation of the**
 45 **Life and Legacy of George Washington**
 46 **Carver by Employment of a Combination**
 47 **of Agricultural Heritage and Exhibits of**
 48 **Plants Known to Dr. Carver) on Cultural**
 49 **Landscapes**

50 Alternative 4 blends the concept of plantings
 51 known to Dr. Carver with site specific
 52 enhancement of the interpretive programming
 53 involving the nineteenth century Moses Carver
 54 farm known to George Washington Carver and
 55 enhanced environmental education opportunities
 56 involving trail expansion and justification for on-
 57 going prairie restoration activities to honor Dr.
 58 Carver’s conservation work. This alternative
 59 focuses on interpretation of several features
 60 known to have been present on the farm during
 61 Carver’s boyhood that are no longer present to
 62 convey the scale, arrangement, orientation and
 63 elements of the historic farmstead. There is also
 64 mowing of two prairie units to interpret the
 65 agrarian setting and managing riparian woodlands
 66 as gallery forests. This alternative also includes
 67 planting of a heritage fruit orchard and the
 68 persimmon grove to interpret one of the key
 69 features described by Dr. Carver from his
 70 childhood. Alternative 4 would have a **park-wide,**
 71 **long-term and major beneficial impact** on the
 72 cultural landscape.

73 For purposes of Section 106 compliance there
 74 would be *no adverse effect*.

75 **Cumulative Impacts**

76 Past, present and reasonably foreseeable future
 77 actions are described under “Cumulative Impacts
 78 for Alternative 1 (No Action).” The overall
 79 cumulative impacts to cultural landscapes from
 80 Alternative 4 in combination with past, present,
 81 and reasonably foreseeable future actions would
 82 be park-wide, long-term, major and beneficial.

83 **Conclusion**

84 Treatment Alternative 4 would have park-wide,
 85 long-term and major beneficial impacts on cultural
 86 landscapes from woodland management,
 87 installation of plantings known to Dr. Carver and

1 interpretation and trail expansion to include
 2 environmental interpretation in Harkins Woods,
 3 and delineation and interpretation of the former
 4 farmstead of Dr. Carver’s childhood. Cumulative
 5 effects would be park-wide, long-term, major and
 6 beneficial.

7 **6.5.2 Historic Buildings and**
 8 **Structures**

9 **Impact Intensity Threshold**

10 NEPA impacts and NHPA section 106 effects on
 11 historic structures are assessed with reference to
 12 guidance contained in 36 CFR part 800 regarding
 13 historic properties. In general, an adverse impact
 14 or effect is recognized through a consideration of
 15 its ability to diminish or destroy the character-
 16 defining features of the historic structures, those
 17 features that convey the structure’s significance.
 18 The ability of a structure to convey significance is
 19 known as integrity. As defined by the NPS, there
 20 are seven aspects of integrity: location, design,
 21 setting, materials, workmanship, feeling and
 22 association. Five of these aspects relate mainly to
 23 physical impacts or effects, such as alteration or
 24 demolition of historic structures. Physical impacts
 25 or effects on historic buildings and structures are
 26 not anticipated under any of the proposed
 27 alternatives. The thresholds of change for the
 28 intensity of an impact on historic buildings and
 29 structures are defined in Table 6-9.

30

31 **Table 6-9. Historic Buildings and Structures**
 32 **Impact and Intensity**

Impact Intensity	Intensity Description
Negligible	Impacts would be at the lowest level of detection with neither adverse nor beneficial consequences. The determination of effect for section 106 would be no adverse effect.
Minor	Alteration of a historic structure would not diminish the overall integrity of the resource. The determination of effect for Section 106 would be no adverse effect.
Moderate	Alteration of a historic structure would diminish the overall integrity of the resource. The determination of effect for Section 106 would be adverse effect. A programmatic agreement is executed among the NPS and applicable state or tribal historic preservation officer and, if necessary, the advisory council, in accordance with 36 CFR 800.6(b). Measures identified in the programmatic agreement to minimize or mitigate adverse impacts reduce the intensity of the impact and NEPA from moderate to minor.
Major	Alteration of a historic structure would diminish the overall integrity of the resource. The determination of effect for Section 106 would be adverse effect. Measures to minimize or mitigate adverse impacts cannot be agreed on, and the NPS and applicable state or tribal historic preservation officer and/or advisory council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).

33

34 **Impacts of Alternative 1 *Preserve Existing***
 35 ***Conditions and Continue Current***
 36 ***Management Strategies (No Action) on***
 37 ***Historic Buildings and Structures***

38 Alternative 1, the No Action Alternative focuses
 39 on preservation of the existing character of the
 40 George Washington Carver National Monument
 41 landscape and current interpretive programs.
 42 Visitors would continue to gain the majority of
 43 their knowledge of the life and accomplishments
 44 of Dr. Carver through the exhibits located within
 45 the visitor center and along the mile-long Carver

Trail. Historic structures and buildings such as the Moses Carver house and the Carver family cemetery perimeter wall will continue to be preserved through continued management and maintenance strategies currently in place at the national monument. There would be no changes to historic buildings and structures under this alternative. The alternative would limit the park's ability to rehabilitate the landscape and its associated buildings and or structures to enhance the memorial nature of the site. This alternative would have *local, long-term, negligible, adverse impact* on historic buildings and structures.

For purposes of Section 106 compliance there would be *no adverse effect*.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions would have local, short-term and negligible adverse impacts on historic buildings and structures. Some of these actions include: small scale construction and excavation for fulfillment of accessibility requirements across the park and in association with the Moses Carver house and future preservation and interpretation actions. The overall cumulative impacts to historic buildings and structures from the "No Action" alternative in combination with the past, present, and reasonably foreseeable future actions would be local, short-term, negligible and adverse.

Conclusions

The No Action Alternative would have local, long-term, negligible adverse impacts on historic buildings and structures. Cumulative effects would be local, short-term, negligible and adverse.

Impacts of Elements Common to the Action Alternatives on Historic Structures

The following proposed actions would impact historic buildings and structures at George Washington Carver National Monument and are common to all the action alternatives:

- Management of woodlands to remove invasive species and enhance interpretation from expanded trails

- Natural resource management of restored grassland prairie for health, diversity, and soil and water conservation
- Preservation, management, and interpretation of Carver Spring and the three streams: Carver, Harkins, and Williams branches
- Maintenance and management of the wet prairie areas located in the southwest and south central areas of the national monument to promote continued diversity of species and community composition found only in seasonally wet areas.
- Maintenance and management of Harkins Woods
- Conversion of the 30-acre parcel acquired by the park in 2006 to prairie to incorporate it into the overall approach to landcover management
- Preservation, maintenance, and management of the cultural vegetation that contributes to the National Register significance of the park including: replanted walnut hedgerow along the Carver Trail near the Carver family cemetery; ornamental plantings at the park former residential complex; and the picnic grove shade trees
- Preservation and maintenance of conservation land uses in order to protect natural resources of high quality and value, including native plant communities and water resources
- Development of overflow parking area in the core developed area on the site of the former residential/storage structures after planned demolition
- Restoration of the persimmon grove along the existing Carver Trail
- Consolidation of the picnic areas into one large space in the existing picnic area north of the entrance road

- 1 ▪ Expansion of the trail system to enhance
2 interpretation of the entire site
 - 3 ▪ Provision of universal accessibility to all
4 buildings and structures as well as features
5 associated with the primary interpretive
6 experience, following the guidelines set forth
7 in the *George Washington Carver National*
8 *Monument: Accessibility Debriefing Report and*
9 *Final Report* (NPS 2014)
 - 10 ▪ Stabilization, maintenance, and considered
11 restoration of the Carver family cemetery wall
12 to reflect intended squared off stone stacking
13 methods and the original eastern opening for
14 access
- 15 Implementation of construction projects such as
16 provision for universal accessibility to the Moses
17 Carver house and to the Carver family cemetery
18 would be a *local, short-term, negligible adverse*
19 *impact* on historic buildings and structures.
- 20 Implementation of rehabilitation and management
21 strategies for land use, historic features, and
22 integration of historic structures and buildings
23 with park-wide interpretation would be a *park-*
24 *wide, long-term, major beneficial impact* on historic
25 buildings and structures. Actions common to
26 alternatives 2, 3, and 4 fall under the
27 comprehensive treatment approach of
28 rehabilitation. Under the rehabilitation treatment,
29 stabilization, protection, and preservation of
30 historic and natural resources are actions that
31 must occur in order to allow for the limited
32 accommodation of new uses.

33 **Impacts of Treatment Alternative 2**
34 **(Rehabilitation of the Landscape, including**
35 **Limited Restoration, For Interpretation to**
36 **Memorialize the Life and Achievements of**
37 **George Washington Carver on Historic**
38 **Buildings and Structures**

39 The historic buildings and structures identified in
40 Chapters 3 and 4 of this document include the
41 Moses Carver house, the Carver family cemetery
42 perimeter wall and the stone boundary markers in
43 the northwest and southwest corners of the
44 George Washington Carver National Monument.
45 In Alternative 2, these features are preserved,

46 managed, and maintained, with enhanced
47 interpretation. This alternative also includes
48 interpretation of the accurate location of the
49 birthplace cabin and Moses Carver homestead
50 based on further research and investigation using
51 foundation outlines and mow patterns. Alternative
52 2 would have **local, long-term, moderate, and**
53 **beneficial impact** on historic buildings and
54 structures.

55 For purposes of Section 106 compliance there
56 would be *no adverse effect*.

57 **Cumulative Impacts**

58 Past, present and reasonably foreseeable future
59 actions are described under “Cumulative Impacts
60 for Alternative 1 (No Action).” The overall
61 cumulative impacts to historic buildings and
62 structures from Alternative 2 in combination with
63 past, present, and reasonably foreseeable future
64 actions would be local, long-term, moderate and
65 beneficial.

66 **Conclusion**

67 Treatment Alternative 2 would have local, long-
68 term and moderate beneficial impacts on historic
69 buildings and structures from preservation,
70 management, repair and maintenance of the
71 building and structures and from sensitive
72 compliance techniques for accessibility.
73 Cumulative effects would be local, long-term,
74 moderate and beneficial.

75 **Impacts of Treatment Alternative 3**
76 **(Interpretation and Celebration of the Life**
77 **and Work of George Washington Carver**
78 **Using an Ethnobotanical Approach) on**
79 **Historic Buildings and Structures**

80 The historic buildings and structures identified in
81 Chapters 3 and 4 of this document include the
82 Moses Carver house, the Carver family cemetery
83 perimeter wall and the stone boundary markers in
84 the northwest and southwest corners of the
85 George Washington Carver National Monument.
86 In Alternative 3, these features are preserved,
87 managed, and maintained, with enhanced
88 interpretation. Alternative 3 would have **local,**

1 **long-term, moderate, and beneficial impact** on
2 historic buildings and structures.

3 For purposes of Section 106 compliance there
4 would be *no adverse effect*.

5 **Cumulative Impacts**

6 Past, present and reasonably foreseeable future
7 actions are described under “Cumulative Impacts
8 for Alternative 1 (No Action).” The overall
9 cumulative impacts to historic buildings and
10 structures from Alternative 3 in combination with
11 past, present, and reasonably foreseeable future
12 actions would be local, long-term, moderate and
13 beneficial.

14 **Conclusion**

15 Treatment Alternative 3 would have local, long-
16 term and moderate beneficial impacts on historic
17 buildings and structures from preservation,
18 management, repair and maintenance of the
19 building and structures and from sensitive
20 compliance techniques for accessibility.
21 Cumulative effects would be local, long-term,
22 moderate and beneficial.

23 **Impacts of Treatment Alternative 4 (Honor, 24 Commemoration, and Interpretation of the 25 Life and Legacy of George Washington 26 Carver by Employment of a Combination 27 of Agricultural Heritage and Exhibits of 28 Plants Known to Dr. Carver) on Historic 29 Buildings and Structures**

30 The historic buildings and structures identified in
31 Chapters 3 and 4 of this document include the
32 Moses Carver house, the Carver family cemetery
33 perimeter wall and the stone boundary markers in
34 the northwest and southwest corners of the
35 George Washington Carver National Monument.
36 In Alternative 4, these features are preserved,
37 managed, and maintained, with enhanced
38 interpretation. This alternative also includes
39 interpretation of the accurate location of the
40 birthplace cabin and Moses Carver homestead
41 based on further research and investigation using
42 foundation outlines and mow patterns. Alternative
43 4 would have **local, long-term, moderate, and**

44 **beneficial impact** on historic buildings and
45 structures.

46 For purposes of Section 106 compliance there
47 would be *no adverse effect*.

48 **Cumulative Impacts**

49 Past, present and reasonably foreseeable future
50 actions are described under “Cumulative Impacts
51 for Alternative 1 (No Action).” The overall
52 cumulative impacts to historic buildings and
53 structures from Alternative 4 in combination with
54 past, present, and reasonably foreseeable future
55 actions would be local, long-term, moderate and
56 beneficial.

57 **Conclusion**

58 Treatment Alternative 4 would have local, long-
59 term and moderate beneficial impacts on historic
60 buildings and structures from preservation,
61 management, repair and maintenance of the
62 building and structures and from sensitive
63 compliance techniques for accessibility.
64 Cumulative effects would be local, long-term,
65 moderate and beneficial.

66

6.5.3 Archeological Resources

Impact Intensity Threshold

Section 106 of the NHPA, and its implementing regulations under 36 CFR 800, require all federal agencies to consider the effects of federal actions on cultural properties eligible for or listed in the national register. In order for an archeological/paleontological site to be listed in the national register, it must contain information likely to yield knowledge of prehistory or history, and the information must be considered important. The site or property must have characteristics suggesting the likelihood that it possesses configurations of artifacts, soil strata, structural remains, or other natural or cultural features that make it possible to test a hypothesis about events, groups, or processes in the past the bear on important research questions in the social or natural sciences or the humanities; or verify or amplify currently available information suggesting that a hypothesis is either true or false; or reconstruct the sequence of archeological cultures for the purpose of identifying and explaining continuities and discontinuities in the archeological record for a particular area.

Due to the nature of archeological projects, the presence or absence of archeological sites in any region cannot be known before initiating an archeological field investigation. Accordingly, impacts on potential archeological resources cannot be known beforehand. If an adverse effect on an archeological resource is identified, all effort will be made to mitigate that adverse effect before proceeding with landscape-disturbing activities. The thresholds of change for the intensity of an impact on archeological resources are defined in Table 6-10.

Table 6-10. Archeological Resources Impact and Intensity

Impact Intensity	Intensity Description
Negligible	Impacts would be at the lowest level of detection with neither adverse nor beneficial consequences. The determination of effect for section 106 would be no adverse effect.
Minor	Alteration of an archaeological site would not diminish the overall integrity of the resource. The determination of effect for Section 106 would be no adverse effect. Monitoring may be required if a proposed activity occurs near an archeological site.
Moderate	Alteration of an archaeological site would diminish the overall integrity of the resource. The determination of effect for Section 106 would be adverse effect. A programmatic agreement is executed among the NPS and applicable state or tribal historic preservation officer and, if necessary, the advisory council, in accordance with 36 CFR 800.6(b). Measures identified in the programmatic agreement to minimize or mitigate adverse impacts reduce the intensity of the impact and NEPA from moderate to minor.
Major	Alteration of an archaeological site would diminish the overall integrity of the resource. The determination of effect for Section 106 would be adverse effect. Measures to minimize or mitigate adverse impacts cannot be agreed on, and the NPS and applicable state or tribal historic preservation officer and/or advisory council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).

Impacts of Alternative 1 Preserve Existing Conditions and Continue Current Management Strategies (No Action) on Archeological Resources

Various archeological inventories have been conducted within the national monument since 1953, through the most recent undertaking in 2014 of additional archeological inventories in compliance with Section 110. Additional investigations at the lithic scatter sites would be

1 very useful in determining site significance and
 2 providing additional information about the long
 3 history of use and occupation. The sites are visited
 4 on a regular basis to assess their condition and
 5 document whether they are being subjected to any
 6 threats or disturbances. They are all currently
 7 listed in “good” condition and are in a good state
 8 of preservation.

9 Under Alternative 1 (No Action), there would be
 10 no new ground-disturbing activities that would
 11 potentially affect archeological resources. Current
 12 levels of maintenance and repairs to historic
 13 buildings and structures and landscapes would
 14 continue. These activities do not typically include
 15 excavation. Because current management
 16 practices would continue and there would be no
 17 new impacts to archeological sites and artifacts,
 18 there would be a *park-wide, long-term, and*
 19 *negligible adverse impact* to archeological
 20 resources.

21 For purposes of Section 106, there would be **no**
 22 **adverse effect**.

23 **Cumulative Impacts**

24 Past, present, and reasonably foreseeable future
 25 actions would have local, short-term and
 26 negligible adverse impacts on archeological
 27 resources. Some of these actions include:
 28 continued prairie restoration and stabilization;
 29 small scale construction and excavation for
 30 fulfillment of accessibility requirements across the
 31 park; future preservation and interpretation
 32 management and changes, and conservation and
 33 management of the streams and Williams Pond.
 34 The overall cumulative impacts to archeological
 35 resources from the “No Action” alternative in
 36 combination with the past, present, and
 37 reasonably foreseeable future actions would be
 38 local, short-term, negligible and adverse.

39 **Conclusions**

40 The No Action Alternative would have park-wide,
 41 long-term, negligible adverse impacts on
 42 archeological resources. Cumulative effects would
 43 be park-wide, long-term, negligible and adverse.

44 **Impacts of Elements Common to the** 45 **Action Alternatives on Archaeological** 46 **Resources**

47 The following proposed actions would impact
 48 archaeological resources at George Washington
 49 Carver National Monument and are common to
 50 all the action alternatives:

- 51 ■ Management of woodlands to remove invasive
 52 species and enhance interpretation from
 53 expanded trails
- 54 ■ Natural resource management of restored
 55 grassland prairie for health, diversity, and soil
 56 and water conservation
- 57 ■ Preservation, management, and interpretation
 58 of Carver Spring and the three streams:
 59 Carver, Harkins, and Williams branches
- 60 ■ Maintenance and management of the wet
 61 prairie areas located in the southwest and
 62 south central areas of the national monument
 63 to promote continued diversity of species and
 64 community composition found only in
 65 seasonally wet areas
- 66 ■ Maintenance and management of Harkins
 67 Woods
- 68 ■ Conversion of the 30-acre parcel acquired by
 69 the park in 2006 to prairie to incorporate it
 70 into the overall approach to landcover
 71 management
- 72 ■ Preservation, maintenance, and management
 73 of the cultural vegetation that contributes to
 74 the National Register significance of the park
 75 including: replanted walnut hedgerow along
 76 the Carver Trail near the Carver family
 77 cemetery; ornamental plantings at the park
 78 former residential complex; and the picnic
 79 grove shade trees
- 80 ■ Preservation and maintenance of conservation
 81 land uses in order to protect natural resources
 82 of high quality and value, including native
 83 plant communities and water resources

- 1 ▪ Development of overflow parking area in the
- 2 core developed area on the site of the former
- 3 residential/storage structures after planned
- 4 demolition

- 5 ▪ Restoration of the persimmon grove along the
- 6 existing Carver Trail

- 7 ▪ Consolidation of the picnic areas into one
- 8 large space in the existing picnic area north of
- 9 the entrance road

- 10 ▪ Expansion of the trail system to enhance
- 11 interpretation of the entire site

- 12 ▪ Provision of universal accessibility to all
- 13 buildings and structures as well as features
- 14 associated with the primary interpretive
- 15 experience, following the guidelines set forth
- 16 in the *George Washington Carver National*
- 17 *Monument: Accessibility Debriefing Report and*
- 18 *Final Report* (NPS 2014)

- 19 ▪ Stabilization, maintenance, and considered
- 20 restoration of the Carver family cemetery wall
- 21 to reflect intended squared off stone stacking
- 22 methods and the original eastern opening for
- 23 access

- 24 Rehabilitation of the national monument to
- 25 accommodate visitors and to improve or expand
- 26 features, may require implementation of
- 27 construction projects to provide for universal
- 28 accessibility to the Moses Carver house and
- 29 existing trails, as well as the expansion of the trail
- 30 system and some vegetation removal. These
- 31 activities could potentially impact archeological
- 32 resources if soil disturbance results in disruption
- 33 of subsurface resources. The impacts would range
- 34 from negligible to moderate adverse impacts
- 35 depending on whether any currently unidentified
- 36 archeological resources are discovered through
- 37 implementation of the proposed actions. Prior to
- 38 implementation of these actions, archeological
- 39 investigation would have to be conducted and any
- 40 ground disturbance monitored. There are
- 41 archeological resources on the site so any
- 42 construction/implementation strategies could
- 43 have a *long-term, negligible to moderate, adverse*
- 44 *impact* on potential archeological resources on the

45 site. Proposed monitoring must be in place to
 46 reduce impacts to short-term, negligible, adverse
 47 impacts and for the purposes of Section 106, no
 48 adverse effect.

49 **Impacts of Treatment Alternative 2**
 50 **(Rehabilitation of the Landscape, including**
 51 **Limited Restoration, For Interpretation to**
 52 **Memorialize the Life and Achievements of**
 53 **George Washington Carver on**
 54 **Archaeological Resources**

55 Alternative 2 would include some excavation for
 56 trail expansion, removal and thinning of
 57 woodlands, and installation of new plantings.
 58 There would be ground disturbance during
 59 demolition of former residences and the
 60 subsequent development of the area for overflow
 61 parking. This would require installation of grass
 62 pavers to stabilize the soil and re-establish ground
 63 cover on the site. Archeological investigations are
 64 integral to this alternative and would determine
 65 additional information about the farm in support
 66 of restoration efforts. Archeological investigation
 67 and research would also determine the accurate
 68 location of the birthplace cabin and Moses Carver
 69 homestead. No known archeological sites would
 70 be disturbed in this alternative. To minimize
 71 potential adverse impacts, surveys would be
 72 conducted prior to ground-disturbing activities.
 73 Monitoring for subsurface artifacts would be
 74 conducted during ground-disturbing activities on
 75 the site. In the event that archeological resources
 76 are encountered, work would be stopped
 77 immediately and the park cultural resource
 78 specialist would be contacted. If necessary the
 79 SHPO and THPO would be consulted on potential
 80 adverse impacts and additional mitigation
 81 measures.

82 Alternative 2 includes ground disturbing activities
 83 with the potential to encounter and adversely
 84 impact previously unknown archeological
 85 resources. Potential adverse impacts would be
 86 minimized by pre-construction surveys and
 87 monitoring in areas with high potential for
 88 artifacts. With the mitigation measures, Alternative
 89 2 would have **local, short-term, and minor**
 90 **adverse impacts** on archeological resources.

1 For purposes of Section 106 compliance there
2 would be *no adverse effect*.

3 **Cumulative Impacts**

4 Past, present and reasonably foreseeable future
5 actions are described under “Cumulative Impacts
6 for Alternative 1 (No Action).” The overall
7 cumulative impacts to archeological resources
8 from Alternative 2 in combination with past,
9 present, and reasonably foreseeable future actions
10 would be park-wide, long-term, minor and
11 adverse with mitigation measures in place.

12 **Conclusion**

13 Treatment Alternative 2 would have local, short-
14 term and minor adverse impacts on archeological
15 resources from various ground disturbances for
16 woodland management, installation of new
17 vegetation, and trail expansion. Cumulative effects
18 would be park-wide, long-term, minor and
19 adverse with mitigation measures in place.

20 **Impacts of Treatment Alternative 3** 21 **(Interpretation and Celebration of the Life** 22 **and Work of George Washington Carver** 23 **Using an Ethnobotanical Approach) on** 24 **Archaeological Resources**

25 Alternative 3 would include some excavation for
26 trail expansion, removal and thinning of
27 woodlands, and installation of new plantings.
28 There would be ground disturbance during
29 demolition of former residences and the
30 subsequent development of the area for overflow
31 parking. This would require installation of grass
32 pavers to stabilize the soil and re-establish ground
33 cover on the site. Archeological investigations are
34 integral to this alternative and would determine
35 additional information about the farm in support
36 of restoration efforts. No known archeological
37 sites would be disturbed in this alternative. To
38 minimize potential adverse impacts, surveys would
39 be conducted prior to ground-disturbing activities.
40 Monitoring for subsurface artifacts would be
41 conducted during ground-disturbing activities on
42 the site. In the event that archeological resources
43 are encountered, work would be stopped
44 immediately and the park cultural resource
45 specialist would be contacted. If necessary the

46 SHPO and THPO would be consulted on potential
47 adverse impacts and additional mitigation
48 measures.

49 Alternative 3 includes ground disturbing activities
50 with the potential to encounter and adversely
51 impact previously unknown archeological
52 resources. Potential adverse impacts would be
53 minimized by pre-construction surveys and
54 monitoring in areas with high potential for
55 artifacts. With the mitigation measures, Alternative
56 3 would have **local, short-term, and minor**
57 **adverse impacts** on archeological resources.

58 For purposes of Section 106 compliance there
59 would be *no adverse effect*.

60 **Cumulative Impacts**

61 Past, present and reasonably foreseeable future
62 actions are described under “Cumulative Impacts
63 for Alternative 1 (No Action).” The overall
64 cumulative impacts to archeological resources
65 from Alternative 3 in combination with past,
66 present, and reasonably foreseeable future actions
67 would be park-wide, long-term, minor and
68 adverse with mitigation measures in place.

69 **Conclusion**

70 Treatment Alternative 3 would have local, short-
71 term and minor adverse impacts on archeological
72 resources from various ground disturbances for
73 woodland management, installation of new
74 vegetation, and trail expansion. Cumulative effects
75 would be park-wide, long-term, minor and
76 adverse with mitigation measures in place.

77 **Impacts of Treatment Alternative 4 (Honor,** 78 **Commemoration, and Interpretation of the** 79 **Life and Legacy of George Washington** 80 **Carver by Employment of a Combination** 81 **of Agricultural Heritage and Exhibits of** 82 **Plants Known to Dr. Carver) on** 83 **Archaeological Resources**

84 Alternative 4 would include some excavation for
85 trail expansion, removal and thinning of
86 woodlands, installation of new plantings, and
87 delineation and interpretation of the former
88 farmstead. There would be ground disturbance
89 during demolition of former residences and the

1 subsequent development of the area for overflow
 2 parking. This would require installation of grass
 3 pavers to stabilize the soil and re-establish ground
 4 cover on the site. Archeological investigations are
 5 integral to this alternative and would determine
 6 additional information about the farm in support
 7 of delineation and interpretive efforts. No known
 8 archeological sites would be disturbed in this
 9 alternative. To minimize potential adverse
 10 impacts, surveys would be conducted prior to
 11 ground-disturbing activities. Monitoring for
 12 subsurface artifacts would be conducted during
 13 ground-disturbing activities on the site. In the
 14 event that archeological resources are
 15 encountered, work would be stopped immediately
 16 and the park cultural resource specialist would be
 17 contacted. If necessary the SHPO and THPO
 18 would be consulted on potential adverse impacts
 19 and additional mitigation measures.

20 Alternative 4 includes ground disturbing activities
 21 with the potential to encounter and adversely
 22 impact previously unknown archeological
 23 resources. Potential adverse impacts would be
 24 minimized by pre-construction surveys and
 25 monitoring in areas with high potential for
 26 artifacts. With the mitigation measures, Alternative
 27 4 would have **local, short-term, and minor**
 28 **adverse impacts** on archeological resources.

29 For purposes of Section 106 compliance there
 30 would be *no adverse effect*.

31 **Cumulative Impacts**

32 Past, present and reasonably foreseeable future
 33 actions are described under “Cumulative Impacts
 34 for Alternative 1 (No Action).” The overall
 35 cumulative impacts to archeological resources
 36 from Alternative 4 in combination with past,
 37 present, and reasonably foreseeable future actions
 38 would be park-wide, long-term, minor and
 39 adverse with mitigation measures in place.

40 **Conclusion**

41 Treatment Alternative 4 would have local, short-
 42 term and minor adverse impacts on archeological
 43 resources from various ground disturbances for
 44 woodland management, installation of new
 45 vegetation, and trail expansion. Cumulative effects

46 would be park-wide, long-term, minor and
 47 adverse with mitigation measures in place.

48 **6.6 Visual Resources**

49 **Impact Intensity Threshold**

50 Visual resources are the features that define the
 51 visual character of an area such as natural features,
 52 vistas, viewsheds, and architecture. The existing
 53 visual environment is what is seen by the visitor
 54 during the approach to George Washington
 55 Carver National Monument as well as what is seen
 56 by the visitor within the site itself. The visual
 57 environment impacts both the anticipation and
 58 experience at the national monument. The quality
 59 of the visual environment is a vital resource and is
 60 instrumental in setting the stage for experiencing
 61 the site. The thresholds of change for the intensity
 62 of impacts to visual resources are described in
 63 Table 6-11.

64 **Table 6-11. Visual Resources Impact and**
 65 **Intensity**

Impact Intensity	Intensity Description
Negligible	Impacts would result in barely perceptible changes to existing viewsheds
Minor	Impacts would result in slightly detectable changes to views in a small area or would introduce a compatible human-made feature to an existing developed area.
Moderate	Impacts would be readily apparent and would change the character of the visual resources in the area. The visitor would be aware of the impacts associated with the alternative and would likely express a neutral to negative opinion about the changes.
Major	Impacts would be highly noticeable and visible from a considerable distance or over a large area. The character of visual resources would change substantially. The visitor would be aware of the effects associated with the alternative and would likely express a strong negative opinion about the changes.

66

1 **Impacts of Alternative 1 Preserve Existing**
 2 **Conditions and Continue Current**
 3 **Management Strategies (No Action) on**
 4 **Visual Resources**

5 George Washington Carver National Monument
 6 exhibits several views designed primarily for
 7 visitor enjoyment and understand of the
 8 landscape. These views were all established as part
 9 of the early development of the park and most
 10 contribute to the significance of the park
 11 landscape. The No Action Alternative focuses on
 12 preservation of the existing character of the
 13 George Washington Carver National Monument
 14 landscape and current interpretive programs.
 15 Views identified as important interpretive vistas,
 16 such as from the visitor center environs across the
 17 prairie to the west, and the views from the Carver
 18 Family cemetery across the prairie, would
 19 continue to be managed for clear sight lines.
 20 Treatment would focus on stabilization and
 21 maintenance of the current landscape and
 22 preservation of the park's commemorative
 23 features as they exist today. There would be *park-*
 24 *wide, long-term, and negligible adverse impacts*
 25 to visual resources under this alternative.

26 **Cumulative Impacts**

27 Past, present, and reasonably foreseeable future
 28 actions would have local, short-term, and
 29 negligible adverse impacts on Visual Resources.
 30 Some of these actions include: routine utility
 31 repair, replacement, and new installation; small
 32 scale construction and excavation for fulfillment
 33 of accessibility requirements across the park; and
 34 present and future management and maintenance
 35 strategies for turf, prairie restoration, and
 36 conservation and management of the streams and
 37 Williams Pond. The overall cumulative impacts to
 38 Visitor Use and Experience from the "No Action"
 39 alternative in combination with the past, present,
 40 and reasonably foreseeable future actions would
 41 be local, short-term, negligible and adverse.

42 **Conclusions**

43 The No Action Alternative would have park-wide,
 44 long-term and negligible adverse impacts to Visual
 45 Resources. Cumulative effects would be park-
 46 wide, short-term, negligible and adverse.

47 **Impacts of Elements Common to the**
 48 **Action Alternatives on Visual Resources**

49 The following proposed actions would impact
 50 visual resources at George Washington Carver
 51 National Monument and are common to all the
 52 action alternatives:

- 53 ■ Management of woodlands to remove invasive
 54 species and enhance interpretation from
 55 expanded trails
- 56 ■ Natural resource management of restored
 57 grassland prairie for health, diversity, and soil
 58 and water conservation
- 59 ■ Preservation, management, and interpretation
 60 of Carver Spring and the three streams: Carver,
 61 Harkins, and Williams branches
- 62 ■ Preservation, management, and maintenance
 63 strategies for perpetuation of the views and
 64 viewsheds that contribute to the National
 65 Register significance of the park
- 66 ■ Maintenance and management of the wet
 67 prairie areas located in the southwest and south
 68 central areas of the national monument to
 69 promote continued diversity of species and
 70 community composition found only in
 71 seasonally wet areas
- 72 ■ Maintenance and management of Harkins
 73 Woods
- 74 ■ Conversion of the 30-acre parcel acquired by
 75 the park in 2006 to prairie to incorporate it into
 76 the overall approach to landcover management
- 77 ■ Preservation, maintenance, and management of
 78 the cultural vegetation that contributes to the
 79 National Register significance of the park
 80 including: replanted walnut hedgerow along
 81 the Carver Trail near the Carver family
 82 cemetery; ornamental plantings at the park
 83 former residential complex; and the picnic
 84 grove shade trees
- 85 ■ Preservation and maintenance of conservation
 86 land uses in order to protect natural resources

1 of high quality and value, including native plant
2 communities and water resources

3 ■ Development of overflow parking area in the
4 core developed area on the site of the former
5 residential/storage structures after planned
6 demolition

7 ■ Restoration of the persimmon grove along the
8 existing Carver Trail

9 ■ Consolidation of the picnic areas into one large
10 space in the existing picnic area north of the
11 entrance road

12 ■ Expansion of the trail system to enhance
13 interpretation of the entire site

14 ■ Provision of universal accessibility to all
15 buildings and structures as well as features
16 associated with the primary interpretive
17 experience, following the guidelines set forth in
18 the *George Washington Carver National*
19 *Monument: Accessibility Debriefing Report and*
20 *Final Report* (NPS 2014)

21 ■ Stabilization, maintenance, and considered
22 restoration of the Carver family cemetery wall
23 to reflect intended squared off stone stacking
24 methods and the original eastern opening for
25 access

26 Implementation of rehabilitation and preservation
27 of significant historic views and viewsheds at the
28 national monument would be a *park-wide, long-*
29 *term, and moderate beneficial impact* to visual
30 resources. Actions common to alternatives 2, 3,
31 and 4 fall under the comprehensive treatment
32 approach of rehabilitation. Under the
33 rehabilitation treatment, stabilization, protection,
34 and preservation of historic viewsheds are actions
35 that must occur in order to preserve significant
36 resources and allow for the limited
37 accommodation of new uses and more visitors.

38 **Impacts of Treatment Alternative 2**
39 **(Rehabilitation of the Landscape, including**
40 **Limited Restoration, For Interpretation to**
41 **Memorialize the Life and Achievements of**
42 **George Washington Carver on Visual**
43 **Resources**

44 Alternative 2 expands the rehabilitation and
45 preservation of significant historic views over the
46 George Washington Carver National Monument
47 landscape. This includes preservation of the
48 existing viewshed from the visitor center to prairie
49 unit 4 and views outward from the family cemetery
50 toward the prairie and woodlands. This alternative
51 also creates viewsheds from the expanded trail for
52 enhanced interpretation to mown hay fields and
53 preservation of the agrarian setting. Alternative 2
54 would have *park-wide, long-term, and major*
55 *beneficial impact* to visual resources.

56 **Cumulative Impacts**

57 Past, present and reasonably foreseeable future
58 actions are described under “Cumulative Impacts
59 for Alternative 1 (No Action).” The overall
60 cumulative impacts to Visual Resources from
61 Alternative 2 in combination with past, present,
62 and reasonably foreseeable future actions would
63 be park-wide, long-term, major and beneficial.

64 **Conclusion**

65 Treatment Alternative 2 would have park-wide,
66 long-term and major beneficial impacts on Visual
67 Resources from visual interpretation of former
68 farm features, and plant and interpretive
69 installations, and use of the cultural landscape for
70 enhanced interpretation, and vistas created to
71 mown hay areas to preserve and interpret the
72 agrarian setting. Cumulative effects would be
73 park-wide, long-term, major and beneficial.

74 **Impacts of Treatment Alternative 3**
75 **(Interpretation and Celebration of the Life**
76 **and Work of George Washington Carver**
77 **Using an Ethnobotanical Approach) on**
78 **Visual Resources**

79 Alternative 3 preserves significant historic views
80 over the George Washington Carver National
81 Monument landscape. This includes preservation
82 of the existing viewshed from the visitor center to

1 prairie unit 4 and views outward from the family
2 cemetery toward the prairie and woodlands. This
3 alternative also creates potential views from the
4 expanded trail for enhanced interpretation of
5 ethnobotanical plantings. Alternative 3 would have
6 *park-wide, long-term, and moderate beneficial*
7 *impact* to visual resources.

8 **Cumulative Impacts**

9 Past, present and reasonably foreseeable future
10 actions are described under “Cumulative Impacts
11 for Alternative 1 (No Action).” The overall
12 cumulative impacts to Visual Resources from
13 Alternative 3 in combination with past, present,
14 and reasonably foreseeable future actions would
15 be park-wide, long-term, moderate and beneficial.

16 **Conclusion**

17 Treatment Alternative 3 would have park-wide,
18 long-term and moderate beneficial impacts on
19 Visual Resources from visual interpretation of
20 former farm features, and plant and interpretive
21 installations, and use of the cultural landscape for
22 enhanced interpretation, and vistas created to
23 mown hay areas to preserve and interpret the
24 agrarian setting. Cumulative effects would be
25 park-wide, long-term, moderate and beneficial.

26 **Impacts of Treatment Alternative 4 (Honor, 27 Commemoration, and Interpretation of the 28 Life and Legacy of George Washington 29 Carver by Employment of a Combination 30 of Agricultural Heritage and Exhibits of 31 Plants Known to Dr. Carver) on Visual 32 Resources**

33 Alternative 4 expands the rehabilitation and
34 preservation of significant historic views over the
35 George Washington Carver National Monument
36 landscape. This includes preservation of the
37 existing viewshed from the visitor center to prairie
38 unit 4 and views outward from the family cemetery
39 toward the prairie and woodlands. This alternative
40 also creates viewsheds from the expanded trail for
41 enhanced interpretation to mown hay fields and
42 preservation of the agrarian setting. Alternative 4
43 would have *park-wide, long-term, and major*
44 *beneficial impact* to visual resources.

45 **Cumulative Impacts**

46 Past, present and reasonably foreseeable future
47 actions are described under “Cumulative Impacts
48 for Alternative 1 (No Action).” The overall
49 cumulative impacts to Visual Resources from
50 Alternative 4 in combination with past, present,
51 and reasonably foreseeable future actions would
52 be park-wide, long-term, major and beneficial.

53 **Conclusion**

54 Treatment Alternative 4 would have park-wide,
55 long-term and major beneficial impacts on Visual
56 Resources from visual interpretation of former
57 farm features, and plant and interpretive
58 installations, and use of the cultural landscape for
59 enhanced interpretation, and vistas created to
60 mown hay areas to preserve and interpret the
61 agrarian setting. Cumulative effects would be
62 park-wide, long-term, major and beneficial.

63 **6.7 Visitor Use and 64 Experience**

65 **Impact Intensity Threshold**

66 NPS *Management Policies 2006* state that the
67 enjoyment of park resources and values by the
68 people of the United States is part of the
69 fundamental purpose of all parks, and that the
70 NPS is committed to providing appropriate high-
71 quality opportunities for visitors to enjoy the park.
72 Consequently, one of the management goals at
73 George Washington Carver National Monument
74 is to ensure that visitors safely enjoy and are
75 satisfied with the availability, accessibility,
76 diversity, and quality of site facilities, services, and
77 appropriate commemorative, educational, and
78 interpretive opportunities.

79 Scoping input and observation of visitation
80 patterns, combined with assessment of amenities
81 available to visitors currently at the national
82 monument, were used to estimate the impacts of
83 the alternatives. Impacts on the ability of visitors to
84 experience a full range of resources was analyzed
85 by examining resources and objectives presented
86 in the national monument’s significance
87 statements, as derived from its enabling
88 legislation. The potential for change in visitor

1 experience proposed by the alternatives was
 2 evaluated by identifying projected increases or
 3 decreases in access, vehicular and pedestrian
 4 circulation, parking, interpretation, visitor services
 5 and other uses, and determining whether or how
 6 these projected changes would affect the desired
 7 visitor experience, to what degree, and for how
 8 long. The thresholds of change for the intensity of
 9 an impact of visitor use and experience are
 10 described in Table 6-12.

11 **Table 6-12. Visitor Use and Experience**
 12 **Impact and Intensity**

Impact Intensity	Intensity Description
Negligible	Changes in visitor experience would be below or at an imperceptible level of detection. The visitor would not likely be aware of the impacts associated with the action.
Minor	Changes in visitor experience would be detectable, although the changes would be slight. Most visitors would be aware of the impacts associated with the action, but would not likely express an opinion about the changes.
Moderate	Changes in visitor experience would be readily apparent. The visitor would be aware of the impacts associated with the action and would likely express an opinion about the changes.
Major	Changes in visitor experience would be readily apparent and severely adverse or exceptionally beneficial. The visitor would be aware of the impacts associated with the action and would likely express a strong opinion about the changes.

13
 14 **Impacts of Alternative 1 Preserve Existing**
 15 **Conditions and Continue Current**
 16 **Management Strategies (No Action) on**
 17 **Visitor Use and Experience**

18 The no action alternative would preclude the park
 19 from meeting some of the goals identified for
 20 consideration as part of the CLR treatment plan in
 21 the Purpose and Need statement and the list of
 22 management issues such as expansion of visitor
 23 parking facilities to accommodate overflow needs,
 24 clarifications of inaccuracies, such as the current
 25 location of the birthplace cabin and the

26 conversion of fescue fields associated with the
 27 former mine site to another landcover type. Nor
 28 further exploration of ways to utilize the cultural
 29 landscape as a tool for interpreting Carver’s life
 30 and accomplishments would be conducted. This
 31 alternative would also limit the park in its ability to
 32 explain the historical context within which George
 33 Washington Carver grew up and his efforts to get
 34 an education and to rehabilitate the landscape and
 35 its associated structures to enhance the memorial
 36 nature of the site.

37 Overall this alternative would have *park-wide,*
 38 *long-term, minor, and adverse impact* on Visitor
 39 Use and Experience.

40 **Cumulative Impacts**

41 Past, present, and reasonably foreseeable future
 42 actions would have park-wide, short-term, and
 43 negligible beneficial impacts to Visitor Use and
 44 Experience. Some of these actions include: any
 45 increased interpretation or programming of
 46 events, future mowing requirements due to turf
 47 management strategies in place or other
 48 management strategies or interpretation
 49 associated with the prairie restoration. The overall
 50 cumulative impacts to Visitor Use and Experience
 51 from the “No Action” alternative in combination
 52 with the past, present, and reasonably foreseeable
 53 future actions would be park-wide, short-term,
 54 minor and adverse.

55 **Conclusions**

56 The No Action Alternative would have park-wide,
 57 long-term, and minor adverse impacts on Visitor
 58 Use and Experience. Cumulative effects would be
 59 park-wide, short-term, minor and adverse.

60 **Impacts of Elements Common to the**
 61 **Action Alternatives on Visitor Use and**
 62 **Experience**

63 The following proposed actions would impact
 64 visitor use and experience at George Washington
 65 Carver National Monument and are common to
 66 all the action alternatives:

- 1 ▪ Management of woodlands to remove invasive
2 species and enhance interpretation from
3 expanded trails
- 4 ▪ Natural resource management of restored
5 grassland prairie for health, diversity, and soil
6 and water conservation
- 7 ▪ Preservation, management, and interpretation
8 of Carver Spring and the three streams:
9 Carver, Harkins, and Williams branches
- 10 ▪ Preservation, management, and maintenance
11 strategies for perpetuation of the views and
12 viewsheds that contribute to the National
13 Register significance of the park
- 14 ▪ Maintenance and management of the wet
15 prairie areas located in the southwest and
16 south central areas of the national monument
17 to promote continued diversity of species and
18 community composition found only in
19 seasonally wet areas
- 20 ▪ Maintenance and management of Harkins
21 Woods
- 22 ▪ Conversion of the 30-acre parcel acquired by
23 the park in 2006 to prairie to incorporate it
24 into the overall approach to landcover
25 management.
- 26 ▪ Preservation, maintenance, and management
27 of the cultural vegetation that contributes to
28 the National Register significance of the park
29 including: replanted walnut hedgerow along
30 the Carver Trail near the Carver family
31 cemetery; ornamental plantings at the park
32 former residential complex; and the picnic
33 grove shade trees
- 34 ▪ Preservation and maintenance of conservation
35 land uses in order to protect natural resources
36 of high quality and value, including native
37 plant communities and water resources
- 38 ▪ Development of overflow parking area in the
39 core developed area on the site of the former
40 residential/storage structures after planned
41 demolition
- 42 ▪ Restoration of the persimmon grove along the
43 existing Carver Trail
- 44 ▪ Consolidation of the picnic areas into one
45 large space in the existing picnic area north of
46 the entrance road
- 47 ▪ Expansion of the trail system to enhance
48 interpretation of the entire site
- 49 ▪ Provision of universal accessibility to all
50 buildings and structures as well as features
51 associated with the primary interpretive
52 experience, following the guidelines set forth
53 in the *George Washington Carver National
54 Monument: Accessibility Debriefing Report and
55 Final Report* (NPS 2014)
- 56 ▪ Stabilization, maintenance, and considered
57 restoration of the Carver family cemetery wall
58 to reflect intended squared off stone stacking
59 methods and the original eastern opening for
60 access
- 61 Most of the actions common to alternatives 2, 3,
62 and 4 such as: development of overflow parking
63 area in the core developed area; preservation,
64 maintenance and management of the cultural
65 vegetation that contributes to the National
66 Register significance of the park; expansion of the
67 trail system to enhance interpretation of the entire
68 site; and provision of universal accessibility to all
69 buildings and structures as well as features
70 associated with the primary interpretive
71 experience would be a *park-wide, long-term, major
72 beneficial impact* on the visitor experience. Actions
73 common to the alternatives 2, 3, and 4 fall under
74 the comprehensive treatment approach of
75 rehabilitation. Under the rehabilitation treatment,
76 stabilization, protection, and preservation of
77 historic and natural resources are actions that
78 must occur in order to allow for the limited
79 accommodation of new uses and enhancement of
80 the visitor experience.

1 **Impacts of Treatment Alternative 2**
 2 **(Rehabilitation of the Landscape, including**
 3 **Limited Restoration, For Interpretation to**
 4 **Memorialize the Life and Achievements of**
 5 **George Washington Carver on Visitor Use**
 6 **and Experience**

7 Alternative 2 suggests enhancing the ability of the
 8 park to tell the story of George Washington
 9 Carver’s experiences by re-establishing and
 10 interpreting missing nineteenth century features
 11 and lifeways. Features anticipated to include are a
 12 persimmon grove, walnut tree fence rows, fruit
 13 orchard, the farmstead area, the rural agricultural
 14 setting, and hayfields. There would be
 15 interpretation the accurate location of the
 16 birthplace cabin and Moses Carver house and
 17 farmstead based on further research and
 18 investigation using foundation outlines and mow
 19 patterns. This alternative would also include
 20 thinning and management of woodland to depict
 21 historic savanna-like character. These activities
 22 would improve the cultural landscape and
 23 establish a clear connection between Dr. Carver’s
 24 life and achievements and the historic landscape of
 25 the farm. Alternative 2 would have a **park-wide,**
 26 **long-term, and major beneficial impact on**
 27 **Visitor Use and Experience.**

28 **Cumulative Impacts**

29 Past, present and reasonably foreseeable future
 30 actions are described under “Cumulative Impacts
 31 for Alternative 1 (No Action).” The overall
 32 cumulative impacts to Visitor Use and Experience
 33 from Alternative 2 in combination with past,
 34 present, and reasonably foreseeable future actions
 35 would be park-wide, long-term, major and
 36 beneficial.

37 **Conclusion**

38 Treatment Alternative 2 would have park-wide,
 39 long-term and major beneficial impacts on Visitor
 40 Use and Experience from interpretation of former
 41 farm features, and plant and interpretive
 42 installations, and use of the cultural landscape for
 43 enhanced interpretation. Cumulative effects
 44 would be park-wide, long-term, major and
 45 beneficial.

46 **Impacts of Treatment Alternative 3**
 47 **(Interpretation and Celebration of the Life**
 48 **and Work of George Washington Carver**
 49 **Using an Ethnobotanical Approach) on**
 50 **Visitor Use and Experience**

51 The focus of Alternative 3 would be the
 52 interpretation of George Washington Carver’s
 53 work and career through plants known to have
 54 been the focus of his experiments and scientific
 55 exploration. Plants would be featured along trails
 56 to enhance interpretation of Dr. Carver’s
 57 achievements. Thinning and clearing of
 58 woodlands would occur to allow for the planting
 59 of ethno-botanical species such as the persimmon
 60 grove, know to the young Carver on the farm and
 61 used in his later experiments. There would also be
 62 expansion of the trail system into additional acres
 63 of the property to provide interpreted
 64 ethnobotanical plantings and an interpreted
 65 environmental trail through Harkins Woods.
 66 Alternative 3 would have a **park-wide, long-term,**
 67 **and moderate beneficial impact on Visitor Use**
 68 **and Experience.**

69 **Cumulative Impacts**

70 Past, present and reasonably foreseeable future
 71 actions are described under “Cumulative Impacts
 72 for Alternative 1 (No Action).” The overall
 73 cumulative impacts to Visitor Use and Experience
 74 from Alternative 3 in combination with past,
 75 present, and reasonably foreseeable future actions
 76 would be park-wide, long-term, moderate and
 77 beneficial.

78 **Conclusion**

79 Treatment Alternative 3 would have park-wide,
 80 long-term and moderate beneficial impacts on
 81 Visitor Use and Experience from ethnobotanical
 82 plantings and interpretation and trail expansion to
 83 include environmental interpretation in Harkins
 84 Woods. Cumulative effects would be park-wide,
 85 long-term, moderate and beneficial.

1 **Impacts of Treatment Alternative 4 (Honor,**
 2 **Commemoration, and Interpretation of the**
 3 **Life and Legacy of George Washington**
 4 **Carver by Employment of a Combination**
 5 **of Agricultural Heritage and Exhibits of**
 6 **Plants Known to Dr. Carver) on Visitor Use**
 7 **and Experience**

8 Alternative 4 blends the concept of installation of
 9 plantings known to Dr. Carver with site specific
 10 enhancement of the interpretive programming
 11 involving the nineteenth century Moses Carver
 12 farm know to George Washington Carver and
 13 enhanced environmental education opportunities
 14 involving trail expansion and justification for on-
 15 going prairie restoration activities to honor Dr.
 16 Carver’s conservation work. This alternative
 17 focuses on interpretation of several features
 18 known to have been present on the farm during
 19 Carver’s boyhood that are no longer present to
 20 convey the scale, arrangement, orientation and
 21 elements of the historic farmstead. There is also
 22 mowing of two prairie units to interpret the
 23 agrarian setting and managing riparian woodlands
 24 as gallery forests. This alternative also includes
 25 planting of a heritage fruit orchard and the
 26 persimmon grove to interpret one of the key
 27 features described by Dr. Carver from his
 28 childhood. Alternative 4 would have a **park-wide,**
 29 **long-term and major beneficial impact** on
 30 **Visitor Use and Experience**

31 **Cumulative Impacts**

32 Past, present and reasonably foreseeable future
 33 actions are described under “Cumulative Impacts
 34 for Alternative 1 (No Action).” The overall
 35 cumulative impacts to Visitor Use and Experience
 36 from Alternative 4 in combination with past,
 37 present, and reasonably foreseeable future actions
 38 would be park-wide, long-term, major and
 39 beneficial.

40 **Conclusion**

41 Treatment Alternative 4 would have park-wide,
 42 long-term and major beneficial impacts on Visitor
 43 Use and Experience from installation of plantings
 44 known to Dr. Carver and interpretation of those
 45 plantings, trail expansion to include
 46 environmental interpretation in Harkins Woods,

47 and delineation and interpretation of the former
 48 farmstead of Dr. Carver’s childhood. Cumulative
 49 effects would be park-wide, long-term, major and
 50 beneficial.

51 **6.8 Park Operations**

52 **Impact Intensity Threshold**

53 Park operations, for this document, refers to the
 54 quality and effectiveness of the infrastructure and
 55 the ability to maintain the infrastructure used in
 56 the operation of the park in order to adequately
 57 protect and preserve vital resources and provide
 58 for an effective visitor experience.

59 The thresholds of change for the intensity of an
 60 impact on park operations are described in Table
 61 6-13.

62 **Table 6-13. Park Operations Impact and**
 63 **Intensity**

Impact Intensity	Intensity Description
Negligible	Impacts to park operations would be at low levels of detection and would not have a substantial impact on park operations.
Minor	The impact would be detectable but would be of a magnitude that would not have a substantial impact on park operations. If mitigation was needed to offset adverse impacts, it would be simple and likely successful.
Moderate	The impacts would be readily apparent and would result in a substantial change in park operations in a manner noticeable to staff and the public. Mitigation measures would be necessary to offset adverse impacts and would likely be successful.
Major	The impacts would be readily apparent, would result in a substantial change in park operations in a manner noticeable to staff and the public, and be markedly different from existing operations. Mitigation measures to offset adverse impacts would be needed, would be extensive, and their success could not be guaranteed.

64

1 **Impacts of Alternative 1 Preserve Existing**
 2 **Conditions and Continue Current**
 3 **Management Strategies (No Action) on**
 4 **Park Operations**

5 Under the No Action Alternative, park operations
 6 would remain consistent with those currently
 7 being undertaken. There would be no change in
 8 current site operations or infrastructure. The
 9 Visitor Center at George Washington Carver
 10 National Monument would continue to be the
 11 primary point of visitor contact. Maintenance
 12 requirements would continue at current levels.
 13 The NPS would need to develop a strategy for the
 14 accommodation of storage needs if plans for
 15 demolition of the former residential structures
 16 goes forward. Under the No Action Alternative,
 17 there would be *park-wide, short-term, and*
 18 *negligible adverse impact* on park operations.

19 **Cumulative Impacts**

20 Past, present, and reasonably foreseeable future
 21 actions would have park-wide, short-term, and
 22 minor adverse impacts Park Operations. Some of
 23 these actions include: any increased interpretation
 24 or programming of events, future mowing
 25 requirements due to turf management strategies in
 26 place or other management strategies associated
 27 with the prairie restoration. The overall
 28 cumulative impacts to Park Operations from the
 29 “No Action” alternative in combination with the
 30 past, present, and reasonably foreseeable future
 31 actions would be park-wide, short-term, minor
 32 and adverse.

33 **Conclusions**

34 The No Action Alternative would have park-wide,
 35 short-term, and negligible adverse impacts on Park
 36 Operations. Cumulative effects would be park-
 37 wide, short-term, minor and adverse.

38 **Impacts of Elements Common to the**
 39 **Action Alternatives on Park Operations**

40 The following proposed actions would impact
 41 park operations at George Washington Carver
 42 National Monument and are common to all the
 43 action alternatives:

- 44 ▪ Management of woodlands to remove invasive
 45 species and enhance interpretation from
 46 expanded trails
- 47 ▪ Natural resource management of restored
 48 grassland prairie for health, diversity, and soil
 49 and water conservation
- 50 ▪ Preservation, management, and interpretation
 51 of Carver Spring and the three streams:
 52 Carver, Harkins, and Williams branches
- 53 ▪ Maintenance and management of the wet
 54 prairie areas located in the southwest and
 55 south central areas of the national monument
 56 to promote continued diversity of species and
 57 community composition found only in
 58 seasonally wet areas.
- 59 ▪ Maintenance and management of Harkins
 60 Woods
- 61 ▪ Conversion of the 30-acre parcel acquired by
 62 the park in 2006 to prairie to incorporate it
 63 into the overall approach to landcover
 64 management
- 65 ▪ Preservation, maintenance, and management
 66 of the cultural vegetation that contributes to
 67 the National Register significance of the park
 68 including: replanted walnut hedgerow along
 69 the Carver Trail near the Carver family
 70 cemetery; ornamental plantings at the park
 71 former residential complex; and the picnic
 72 grove shade trees
- 73 ▪ Preservation and maintenance of conservation
 74 land uses in order to protect natural resources
 75 of high quality and value, including native
 76 plant communities and water resources
- 77 ▪ Development of overflow parking area in the
 78 core developed area on the site of the former
 79 residential/storage structures after planned
 80 demolition
- 81 ▪ Restoration of the persimmon grove along the
 82 existing Carver Trail
- 83 ▪ Consolidation of the picnic areas into one
 84 large space in the existing picnic area north of
 85 the entrance road

- 1 ■ Expansion of the trail system to enhance
2 interpretation of the entire site
- 3 ■ Provision of universal accessibility to all
4 buildings and structures as well as features
5 associated with the primary interpretive
6 experience, following the guidelines set forth
7 in the *George Washington Carver National
8 Monument: Accessibility Debriefing Report and
9 Final Report* (NPS 2014)
- 10 ■ Stabilization, maintenance, and considered
11 restoration of the Carver family cemetery wall
12 to reflect intended squared off stone stacking
13 methods and the original eastern opening for
14 access

15 Implementing the limited construction actions or
16 undertaking the preservation, maintenance, and
17 management strategies common to the action
18 alternatives would result in a *park-wide, long term
19 moderate adverse impact* to park operations,
20 management, and infrastructure. Expanded
21 landscape management and interpretive programs
22 will require additional man-power as well as
23 expanded mowing and burning regimens for the
24 restoration of the grassland prairie and the overall
25 land cover management at the national
26 monument.

27 **Impacts of Treatment Alternative 2**
28 **(Rehabilitation of the Landscape, including**
29 **Limited Restoration, For Interpretation to**
30 **Memorialize the Life and Achievements of**
31 **George Washington Carver on Park**
32 **Operations**

33 Alternative 2 would require expansion of park
34 operations due to enhanced interpretation of the
35 park to tell the story of George Washington
36 Carver’s experiences by re-establishing and
37 interpreting missing nineteenth century features
38 and lifeways. Features anticipated to include are a
39 persimmon grove, walnut tree fence rows, fruit
40 orchard, the farmstead area, the rural agricultural
41 setting, and hayfields. There would be
42 interpretation of the accurate location of the
43 birthplace cabin and Moses Carver house and
44 farmstead based on further research and
45 investigation using foundation outlines and mow
46 patterns. This alternative would also include

47 thinning and management of woodland to depict
48 historic savanna-like character. There would also
49 be expanded operations due to mown hayfields in
50 designed viewsheds in Alternative 2. These
51 activities would improve the cultural landscape
52 and establish a clear connection between Dr.
53 Carver’s life and achievements and the historic
54 landscape of the farm, but increase the necessity
55 for expanded park operations for landscape
56 management and enhanced interpretation.
57 Alternative 2 would have a **park-wide, long-term,**
58 **and moderate adverse impact** on the Park
59 Operations.

60 **Cumulative Impacts**

61 Past, present and reasonably foreseeable future
62 actions are described under “Cumulative Impacts
63 for Alternative 1 (No Action).” The overall
64 cumulative impacts to Park Operations from
65 Alternative 2 in combination with past, present,
66 and reasonably foreseeable future actions would
67 be park-wide, long-term, moderate and adverse.

68 **Conclusion**

69 Alternative 2 would have park-wide, long-term,
70 moderate and adverse impacts on Park Operations
71 from expanded interpretation and expanded
72 management of woodlands, water resources,
73 prairies, viewsheds, new trails, and changes in
74 vegetation cover. Cumulative effects would be
75 park-wide, long-term, moderate and adverse.

76 **Impacts of Treatment Alternative 3**
77 **(Interpretation and Celebration of the Life**
78 **and Work of George Washington Carver**
79 **Using an Ethnobotanical Approach) on**
80 **Park Operations**

81 Alternative 3 would require expansion of park
82 operations due to enhanced interpretation of the
83 park with a focus on George Washington Carver’s
84 work and career through plants known to have
85 been the focus of his experiments and scientific
86 exploration. Plants would be installed along trails
87 to enhance interpretation of Dr. Carver’s
88 achievements. Thinning and clearing of
89 woodlands would occur to allow for the planting
90 of ethno-botanical species such as the persimmon
91 grove, know to the young Carver on the farm and

1 used in his later experiments. There would also be
2 expansion of the trail system into additional acres
3 of the property to provide interpreted
4 ethnobotanical plantings and an interpreted
5 environmental trail through Harkins Woods.
6 These activities would improve the cultural
7 landscape and establish a clear connection
8 between Dr. Carver’s life and legacy as a scientist
9 and educator but these actions will increase the
10 necessity for expanded park operations for
11 landscape management and enhanced
12 interpretation. Alternative 3 would have a **park-
13 wide, long-term, moderate, and adverse impact**
14 on Park Operations.

15 **Cumulative Impacts**

16 Past, present and reasonably foreseeable future
17 actions are described under “Cumulative Impacts
18 for Alternative 1 (No Action).” The overall
19 cumulative impacts to Park Operations from
20 Alternative 3 in combination with past, present,
21 and reasonably foreseeable future actions would
22 be park-wide, long-term, moderate and adverse.

23 **Conclusion**

24 Alternative 3 would have park-wide, long-term,
25 moderate, adverse impacts on Park Operations
26 from expanded interpretation and expanded
27 installation and management of ethnobotanical
28 plantings, expanded management of woodlands,
29 water resources, prairies, viewsheds, and new
30 trails. Cumulative effects would be park-wide,
31 long-term, moderate and adverse.

32 **Impacts of Treatment Alternative 4 (Honor, 33 Commemoration, and Interpretation of the 34 Life and Legacy of George Washington 35 Carver by Employment of a Combination 36 of Agricultural Heritage and Exhibits of 37 Plants Known to Dr. Carver) on Park 38 Operations**

39 Alternative 4 would require expansion of park
40 operations due to enhancement of the interpretive
41 programming involving the nineteenth century
42 Moses Carver farm known to George Washington
43 Carver and enhanced environmental education
44 opportunities involving trail expansion and
45 justification for on-going prairie restoration

46 activities to honor Dr. Carver’s conservation work.
47 This alternative focuses on interpretation of
48 several features known to have been present on
49 the farm during Carver’s boyhood that are no
50 longer present to convey the scale, arrangement,
51 orientation and elements of the historic farmstead.
52 There is also mowing of two prairie units to
53 interpret the agrarian setting and managing
54 riparian woodlands as gallery forests. This
55 alternative also includes planting of a heritage fruit
56 orchard and the persimmon grove to interpret one
57 of the key features described by Dr. Carver from
58 his childhood. Features included are a persimmon
59 grove, walnut tree fence rows, fruit orchard, the
60 farmstead area, the rural agricultural setting, and
61 hayfields. There would be interpretation of the
62 accurate location of the birthplace cabin and
63 Moses Carver house and farmstead based on
64 further research and investigation using
65 foundation outlines and mow patterns. These
66 activities would improve the cultural landscape
67 and use it to interpret the entire life of George
68 Washington Carver, but these actions will increase
69 the necessity for expanded park operations for
70 landscape management and enhanced
71 interpretation. Alternative 4 would have a **park-
72 wide, long-term, and moderate adverse impact**
73 on the Park Operations.

74 **Cumulative Impacts**

75 Past, present and reasonably foreseeable future
76 actions are described under “Cumulative Impacts
77 for Alternative 1 (No Action).” The overall
78 cumulative impacts to Park Operations from
79 Alternative 4 in combination with past, present,
80 and reasonably foreseeable future actions would
81 be park-wide, long-term, moderate and adverse.

82 **Conclusion**

83 Alternative 4 would have park-wide, long-term,
84 moderate and adverse impacts on Park Operations
85 from expanded interpretation and expanded
86 installation and management of plantings known
87 to Dr. Carver, expanded management of
88 woodlands, water resources, prairies, viewsheds,
89 and new trails. Cumulative effects would be park-
90 wide, long-term, moderate and adverse.

Chapter 7: Consultation and Coordination

7.0 Introduction

NPS Director's Order 12 requires the NPS to make "diligent" efforts to involve the interested and affected public in the NEPA process. This chapter documents the scoping process for this CLR/EA as well as interagency consultation and coordination with Fish and Wildlife Service, the Missouri State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officers (THPO), and other natural and cultural resource agencies. Also included is the list of recipients who received notice of the project undertaking and the planned stakeholder meetings.

7.1 Scoping Process

Start-Up Meeting

To officially initiate this project, a kick-off meeting was held on November 5 and 6, 2013. Project team members from Bahr Vermeer Haecker Architects, John Milner Associates, Inc., Wiss, Janney, Elstner Associates, Inc., and Historic Resources Group, Inc., met with park and regional NPS personnel at the George Washington Carver National Monument visitor center to initiate work on the CLR as part of the phase two site visit. The meeting began with introductions of park, regional office, and contractor project staff. During the meeting, Marla McEnaney introduced the purpose, goals, and methodology of the CLR, and the park identified the issues of concern to be addressed in the report. Project administration procedures were established, materials needed by the CLR team were identified, and a process for transmission determined. The park also identified the resources available to the team and any special conditions unique to the project and site. NPS personnel subsequently provided the CLR team

with a tour of the park. In addition to the start-up meeting, the project team met with park maintenance and interpretive personnel to solicit their input on park management issues, goals, and concerns during meetings held during the site visit.

Scoping

Environmental assessment scoping is an early and open process to determine the breadth of issues and alternatives to be addressed. The park staff and resource professionals of the NPS Midwest Regional Office conducted internal scoping for the CLR project at George Washington Carver National Monument. This interdisciplinary process defined the purpose and need, identified potential actions to address the need, determined the likely issues and impact topics, and identified the relationship of the preferred alternative to other planning efforts at the park. Typically, both internal and public scoping is held to address these elements. From previous planning efforts and development of resource documents, the park has a well-established list of stakeholders, interested in the alternatives being proposed for the park. For this CLR/EA, the superintendent initiated public scoping on March 1, 2014.

The NHPA (16 United States Code [USC] 470 et seq.); NEPA; NPS Organic Act; NPS *Management Policies 2006*; Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision-making (2001); and Director's Order 28: Cultural Resources Management Guideline require the consideration of impacts on cultural resources, either listed in or eligible to be listed in, the National Register of Historic Places. The park notified the Missouri State Historic Preservation Office (SHPO) of the project by email correspondence on February 20,

1 2014 and there was a SHPO on-site visit April 2,
 2 2014. The park provided the SHPO with a 75
 3 percent draft copy of the CLR/EA. The SHPO was
 4 also sent a follow up invitational letter on April 8,
 5 2014, for the stakeholder meeting to be held at the
 6 park on May 14, 2014. In October 2014, NPS
 7 provided the SHPO a copy of the 95 percent draft
 8 copy of CLR/EA for review and comment.

9 The park sent the U.S. Fish and Wildlife Service
 10 (USFWS) a scoping notice on April 8, 2014, to
 11 solicit input on threatened and endangered species
 12 concerns for the 240 acres of the park included in
 13 the CLR/EA treatment alternatives and to invite
 14 agency participation in the scoping meeting on
 15 May 14, 2014. The NPS provided the USFWS a
 16 75 percent draft copy of the CLR/EA for review
 17 and comment.

18 George Washington Carver National Monument
 19 conducted initial consultation with THPOs for the
 20 United Osage Nation, the United Keetoowah Band
 21 of Cherokee Indians in Oklahoma, the Caddo
 22 Nation, and the Eastern Shawnee Tribe of
 23 Oklahoma for the purpose of developing a
 24 Programmatic Agreement between the tribes and
 25 the park. Letters were issued to the THPOs along
 26 with a draft of the agreement, inviting them to
 27 review the document and attend a follow-up
 28 consultation meeting on April 3, 2014. In the same
 29 letter, THPOs were invited to the larger
 30 stakeholder meetings at the park on May 14, 2014.
 31 A follow-up letter with notice of the stakeholder
 32 meeting date and time was sent to the THPOs on
 33 April 8, 2014, to solicit input and participation in
 34 the CLR/EA meeting. The NPS provided the
 35 THPOs a copy of the 95 percent draft CLR/EA for
 36 review and comment.

37 The scoping process will continue during the
 38 public review period when the 95 percent draft
 39 CLR/EA document is posted to the National Park
 40 Service PEPC site. Comments from the public will
 41 be consolidated and taken into account as the
 42 CLR/EA is finalized. Solicitation of comments will
 43 also continue during this 30-day formal review
 44 period from agencies, the Missouri SHPO, and
 45 Indian tribes. Additional comments will also be
 46 taken by mail or email to the Superintendent's
 47 office at the Park.

48 **7.2 Interagency Consultation** 49 **and Coordination**

50 Interagency consultation and coordination has
 51 included: the Missouri State Historic Preservation
 52 Officer; THPOs from Osage Nation, United
 53 Keetoowah Band of Cherokee Indians, Quapaw
 54 Tribe of Oklahoma, the Miami Nation, Wyandotte
 55 Tribe, Eastern Shawnee Tribe of Oklahoma, and
 56 the Caddo Nation; U.S Fish and Wildlife Service;
 57 Missouri Department of Conservation; Natural
 58 Resources Conservation Service; and the
 59 Heartland Inventory and Monitoring Program. All
 60 were notified of the project undertaking and
 61 issued an invitation to the stakeholder meeting on
 62 May 14, 2014, to review and comment on the
 63 proposed alternatives for the George Washington
 64 Carver National Monument CLR/EA. NPS
 65 subsequently provided agency representatives
 66 with the 95 percent draft of the CLR/EA for review
 67 and comment. Their comments and letters will be
 68 included in the final CLR/EA document.

69 **7.3 List of Recipients of** 70 **Letters of Notice and** 71 **Invitation for the Stakeholder** 72 **Meetings**

- 73 ■ Mr. Charlie Scott, U. S. Fish and Wildlife
 74 Service
- 75 ■ Dr. James Jackson, Biology Department,
 76 Missouri Southern State University
- 77 ■ Dr. Luther Williams, Provost of Tuskegee
 78 Institute
- 79 ■ Dr. Charles Nilon, Department of Fisheries
 80 and Wildlife Sciences, University of Missouri
- 81 ■ Mr. Lynn Jenkins, District Conservationist,
 82 Natural Resources Conservation Service,
 83 U.S. Department of Agriculture
- 84 ■ Mr. Jerid Wilkinson, Conservation Agent,
 85 Missouri Department of Conservation

- 1 ▪ Mr. Jeff Cantrell, Education Consultant,
2 Missouri Department of Conservation
- 3 ▪ Mr. Rick Horton, Fisheries Management
4 Biologist, Missouri Department of
5 Conservation
- 6 ▪ Mr. Nate Forbes, Forestry District Supervisor,
7 Missouri Department of Conservation
- 8 ▪ Mr. Mike Petersen, Private Land
9 Conservationist
- 10 ▪ Mr. Jon Skinner, Urban Forester, Missouri
11 Department of Conservation
- 12 ▪ Ms. Ronda Headland, Community
13 Conservation Planner, Missouri, Department
14 of Conservation
- 15 ▪ Mr. Mike DeBacker, Heartland Inventory and
16 Monitoring Program
- 17 ▪ Mr. Guy Headland, Outdoor Recreation
18 Planner, Rivers, Trails, and Conservation
19 Assistance Program, National Park Service
- 20 ▪ Mr. John Wingo, President, Missouri Prairie
21 Foundation
- 22 ▪ George Washington Carver National
23 Monument Volunteers-in-Park
- 24 ▪ Ms. Martha Ruhe, Landscape Architect, NPS,
25 (retired)
- 26 ▪ Mr. Bill Jackson, Past Park Superintendent
- 27 ▪ Mrs. Jodie Murray Burns, Chair, Carver
28 Birthplace Association
- 29 ▪ Honorable Mr. Bill Reiboldt, Missouri House
30 of Representatives, District 160
- 31 ▪ Honorable Mr. Bill Lant, Missouri House of
32 Representatives, District 159
- 33 ▪ Mr. Sam Claussen, President, Missouri
34 Archeological Society
- 35 ▪ Mr. Charles Nodler, Archivist, Missouri
36 Southern State University
- 37 ▪ Dr. Gary Kremer, Director, The State
38 Historical Society of Missouri
- 39 ▪ Mr. Keith Zoromski, History Department,
40 Crowder College, Neosho
- 41 ▪ Ms. Deb Sheals, Historic Preservation
42 Consultant
- 43 ▪ Mr. Steve Roark, President, Newton County
44 Tourism Council
- 45 ▪ Mr. Jeremy Elliott-Engel, County Program
46 Director, Newton County Extension Center
- 47 ▪ Mr. Greg Bowman, Regional Coordinator,
48 Ducks Unlimited
- 49 ▪ Mr. Bob Kulp, Director, Newton County
50 Health Department
- 51 ▪ Ms. Pauline Charles, Past CBA Business
52 Manager and current VIP
- 53 ▪ Ms. Mary Jean Barker, Past CBA Business
54 Manager and long-time VIP
- 55 ▪ Ms. Christy Hyman, Past seasonal employee,
56 current VIP
- 57 ▪ Mr. Justin Hall , Past seasonal employee,
58 current VIP
- 59 ▪ Ms. Judith Deel, State Historic Preservation
60 Office
- 61 ▪ Dr. Andrea Hunter, THPO, Osage Nation
- 62 ▪ Ms. Lisa C. Baker, Acting THPO, United
63 Keetoowah Band of Cherokee Indians
- 64 ▪ Mr. Everett Bandy, THPO, Quapaw Tribe of
65 Oklahoma
- 66 ▪ Mr. Robert Cast, THPO, Caddo Nation
- 67 ▪ Dr. Barker Fariss, THPO Archeologist for the
68 Osage Nation

- 1 ▪ Mr. Scott Willard, THPO, Miami Nation
- 2 ▪ Ms. Sherri Clemons, THPO, Wyandotte Tribe
- 3 ▪ Ms. Jean Ann Lambert, Assistant THPO,
4 Quapaw Tribe
- 5 ▪ Ms. Robin Dushane, THPO, Eastern Shawnee
6 Tribe of Oklahoma
- 7 ▪ Ms. Megan Bui, Community Focus Group
8 Study participant 2013
- 9 ▪ Rev. Dr. Betty Hannah-Witherspoon,
10 Community Focus Group participant 2013
- 11 ▪ Ms. Susan Marshall, Community Focus Group
12 participant 2013
- 13 ▪ Ms. Laurie Jones, Community Focus Group
14 participant 2013
- 15 ▪ Ms. Barbara True, Community Focus Group
16 participant 2013
- 17 ▪ Rev. Young K. Yoon, Community Focus
18 Group participant 2013
- 19 ▪ Mr. Bob Brower, Carthage YMCA
- 20 ▪ Mr. Jonathan Roberts, Carthage YMCA
- 21 ▪ Mr. and Mrs. Mike Funderburgh, Park
22 neighbor
- 23 ▪ Mr. and Mrs. Melvin Alford, Park neighbor
- 24 ▪ Mr. and Mrs. Jess Holler, Park neighbor
- 25 ▪ Mr. and Mrs. Glenn Brown, Park neighbor
- 26 ▪ Mr. and Mrs. Elza Winter, Park neighbor
- 27 ▪ Mr. and Mrs. Bob Plummer, Park neighbor
- 28 ▪ Mr. Darwin Morgan, Annual family reunions
29 held at the park (Carver ancestry).
- 30 ▪ Mr. Stephen Gilmore, Annual family reunions
31 held at the park (Carver ancestry).
- 32 ▪ Ms. Lauren Copple, Missouri Department of
33 Conservation
- 34 ▪ Mr. and Mrs. Mike and Linda Simmons, Park
35 VIP
- 36 ▪ Mr. and Mrs. Larry and JoAnn Carnagey, Park
37 VIP
- 38 ▪ Mr. Dave Hennes, Park VIP
- 39 ▪ Ms. Cecelia Miller, Park VIP
- 40 ▪ Mr. and Mrs. Don and Denise Jessen, Park
41 VIP
- 42 ▪ Ms. Phyllis Chancellor, Park VIP
- 43 ▪ Mr. and Mrs. Jerry and Barbara Hixenbaugh,
44 Park VIP
- 45 ▪ Dr. Robert Heth, Biology Department,
46 Missouri Southern State University
- 47 ▪ Ms. Lydia Kaume, Barton County Extension
48 Center, University of Missouri
- 49 ▪ Ms. Meg Bourne Hulsey, Art Feeds
- 50 ▪ Ms. Courtney Bay, Ozark Center
- 51 ▪ Ms. Jennifer Jameson, Joplin Family YMCA
- 52 ▪ Missouri Archeological Society, Missouri State
53 University
- 54 ▪ Newton County Commissioners
- 55 ▪ Chamber of Commerce, Neosho
- 56 ▪ Chamber of Commerce, Seneca
- 57 ▪ Chamber of Commerce, Carthage
- 58 ▪ Chamber of Commerce, Joplin
- 59 ▪ Convention/Visitors Bureau, Joplin
- 60 ▪ Mr. Dave Hendrix, Neosho National Fish
61 Hatchery

- 1 ▪ Mr. Brad Belk, Joplin Museum Complex/Tri-
2 State Mineral Museum
- 3 ▪ Executive Director, Wildcat Glades
4 Conservation and Audubon Center
- 5 ▪ Mr. Shane Hunter, Mayor, City of Diamond
- 6 ▪ Historical Society, Newton County
- 7 ▪ Dr. Eulanda Sanders, Iowa State University
- 8 ▪ Dr. Paul Teverow, History Department,
9 Missouri Southern State University
- 10 ▪ Dr. Steve Smith, History Department Chair,
11 Missouri Southern State University
- 12 ▪ Dr. Al Cade, School of Education, Missouri
13 Southern State University
- 14 ▪ Ms. Sandy Taylor, Superintendent, Tuskegee
15 Institute National Historic Site
- 16 ▪ Dr. Matthew Jenkins, Acting President,
17 Tuskegee Institute
- 18 ▪ Honorable Charlie Davis, United States House
19 of Representatives
- 20 ▪ Honorable Billy Long, United States
21 Congressman
- 22 ▪ Honorable Claire McCaskill, United States
23 Senate
- 24 ▪ Honorable Roy Blunt, United State Senate
- 25 ▪ Honorable Ron Richard, United States Senate
- 26 ▪ Ms. Kris Drake, Freeman Health System
- 27 ▪ Mr. Karl Schmidt, American Heart
28 Association
- 29 ▪ Mr. Joseph T. Njenga, Alliance of Southwest
30 Missouri
- 31 ▪ Dr. Jim Horton, Southwest Center for
32 Educational Excellence
- 33 ▪ Ms. Julia Price-Allison, Diamond High School
- 34 ▪ Mr. and Mrs. Bill Abernathy, Park VIP
- 35 ▪ Mr. and Mrs. Jack and Diane Andris, Park VIP
- 36 ▪ Mrs. Penny Graves, Park VIP
- 37 ▪ Mr. and Mrs. Phil and Gayle O’Hare, Park VIP
- 38 ▪ Ms. Cathy Walsh, CDA Board Member
- 39 ▪ Mr. Gary Stubblefield, CBA Board Member
- 40 ▪ Mr. Larry Swift, CBA Board Member
- 41 ▪ Dr. and Mrs. Roy Shaver, CBA Board Member
- 42 ▪ Mr. and Mrs. William and Melody Colbert-
43 Kean, CBA Board Member
- 44 ▪ Dr. Linda Warner, CBA member
- 45 ▪ Mr. and Mrs. Larry and Linda James, CBA
46 Board Member
- 47

Chapter 8: Implementation, Phasing, and Cost Estimate for Preferred Alternative

(This chapter to be included in final document)

8.0 Introduction

8.1 Development and Implementation of the Preferred Alternative

8.2 Project Phasing

8.3 Cost Estimate

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