National Park Service
U.S. Department of the Interior

George Washington Carver National Monument
Diamond, Missouri



George Washington Carver National Monument

Cultural Landscape Report
Environmental Assessment

95% DRAFT CLR/EA

FEBRUARY 2015

George Washington Carver National Monument

Diamond, Missouri

Cultural Landscape Report Environmental Assessment

95% DRAFT

Prepared by:
Bahr Vermeer & Haecker Architects, Ltd.
440 North 8th Street, Suite 100
Lincoln, Nebraska 68508

John Milner Associates, Inc.
300 West Main Street, Suite 201
Charlottesville, Virginia 22903

Wiss, Janney, Elstner Associates, Inc.
330 Pfingsten Road
Northbrook, Illinois 60062

Historic Resources Group
442 South 28th Street
Lincoln, Nebraska 68508

Prepared for:
National Park Service
Midwest Regional Office
601 Riverfront Drive
Omaha, Nebraska 68102

February 2015



Cultural Resources Division
Midwest Regional Office
National Park Service
601 Riverfront Drive
Omaha, Nebraska 68102

About the front cover: View of Landscape of George Washington Carver National Monument

This manuscript has been authored by Bahr Vermeer & Haecker Architects, Ltd.; John Milner Associates, Inc.; and Wiss, Janney, Elstner Associates, Inc.; and Historic Resources Group, under Contract Number PO9PC60851 with the National Park Service. The United States Government retains and the publisher, by accepting the article for publication, acknowledges that the United States Government retains a non-exclusive, paid-up, irrevocable, world-wide license to publish or reproduce the published form of this manuscript, or allow others to do so, for United States Government purposes.

George Washington Carver National Monument

Diamond, Missouri

Cultural Landscape Report Environmental Assessment

Contents

Foreword viii
Acknowledgements ix

Chapter 1: Introduction

1.0 Overview 1
1.1 Purpose and Need for the Project 3
1.2 Scope of the Report 4
1.3 Methodology 5
1.3.1 Cultural Landscape Report 6
1.3.2 Environmental Assessment 9
1.4 Historical Summary 11
1.5 Park Purpose/Significance 12
1.6 Description of the Study Area 13
1.7 Related Planning Documents 17
1.8 Environmental Assessment Impact Topics 21
1.8.0 Scoping 21
1.8.1 Management/Planning Goals, Issues, and Concerns 22
1.8.2 Impact Topics Evaluated 24
1.8.3 Impact Topics Dismissed from Further Analysis 25
Table: Summary of Impact Topics 28

Chapter 2: Site History

Introduction 31
Initial Settlement of the Moses Carver Farm 31
Slavery at the Moses Carver Farm 32
Emancipation 33
The Moses Carver Farm after the Civil War 34
George Washington Carver Leaves the Moses Carver Farm 34
George Washington Carver in Later Years 35
The Moses Carver Farm in the Late Nineteenth and Early Twentieth Centuries 39
Establishment of the George Washington Carver National Monument 39
Acquisition of Land and Early Park Planning 40
Mission 66 Development at George Washington Carver National Monument 47
Continued Development of the National Monument, 1963 to Present 53
Archeological Studies 58
George Washington Carver National Monument Chronology 61
Significance Evaluation 65
National Register Status of George Washington Carver National Monument 65
LRIP and CLI Significance Evaluation 67

Chapter 3: Existing Conditions and Comparative Analysis and Evaluation

3.0 Introduction 73
3.1 Park Environmental and Cultural Context and Setting 75
3.1.1 Physiography 75
3.1.2 Geology and Soils 77
3.1.3 Hydrology 79
3.1.4 Vegetation 79
3.1.5 Wildlife 81
3.1.6 Threatened and Endangered Species 81
3.1.7 Planning and Zoning Policies 82

3.1.9 Demographics 83
3.1.9 Climate 83
3.1.10 Regional Related Attractions 83
3.1.11 Park Stakeholders and Constituents 84
3.2 Overall Park Composition 84
3.3 Documentation and Assessment by Landscape Characteristic 89
3.3.1 Natural Systems and Features 89
3.3.2 Responses to Natural Features 104
3.3.3 Patterns of Spatial Organization 110
3.3.4 Views and Vistas 115
3.3.5 Topographic Modifications 118
3.3.6 Land Uses and Activities 122
3.3.7 Cultural Vegetation 125
3.3.8 Circulation 135
3.3.9 Buildings and Structures 149
3.3.10 Utilities 174
3.3.11 Small-scale Features 178
3.3.12 Archeological Resources 190
3.4 Assessment of Integrity 192
3.5 FMSS Table of Resources 193

Chapter 4: Affected Environment

4.0 Introduction 203
4.1 Natural Resources 203
4.1.1 Soils 203
4.1.2 Vegetation 205
4.1.3 Water Quality 207
4.1.4 Wildlife and Wildlife Habitat 208
4.1.5 Rare, Threatened, and Endangered Species 208
4.1.6 Wetlands 209
4.1.7 Floodplains 210
4.2 Cultural Resources 211
4.2.1 Cultural Landscapes 211
4.2.2 Historic Structures 211
4.2.3 Archeological Resources 212
4.3 Visual Resources 213
4.4 Visitor Use and Experience 213
4.5 Park Operations 215

Chapter 5: Alternatives and Treatment

5.0 Introduction 217
5.1 Park Management Issues, Goals, and Objectives 218
5.2 Alternatives and Treatment Recommendations 223
5.2.1 Alternative 1. The No Action Alternative 223
5.2.2 Goals and Objectives Common to the Action Alternatives 227
5.2.3 Treatment Recommendations Common to the Action Alternatives 227
5.2.4 Action Alternatives Developed through the CLR/EA Planning Process 232
5.3 Recommended Treatment Guidelines Associated with the Cultural Landscape 247
5.4 Selection of the Preferred Alternative 252
5.5 The Environmentally Preferred Alternative 253
5.6 Alternatives Considered but Dismissed 254
5.7 Mitigation 259
5.8 Summary of Goals and Objectives by Alternative (Table) 261
5.9 Summary of Impacts by Alternative (Table) 267

Chapter 6: Impact Analysis and Environmental Consequences

6.0 Introduction 275
6.1 General Methods 275
6.2 Cumulative Effects 276
6.3 Impacts to Cultural Resources and Section 106 of the NHPA 277
6.4 Natural Resources 277
6.5 Cultural Resources 304
6.6 Visual Resources 316
6.7 Visitor Use and Experience 319
6.8 Park Operations 323

Chapter 7: Consultation and Coordination

7.0 Introduction 327
71 Scoping Process 327
7.2 Interagency Consultation and Coordination 328
7.3 List of Letter Recipients for Draft EA Availability and Solicitation 328

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

8.0 Introduction 333
8.1 Development and Implementation of the Preferred Alternative 333
8.2 Project Phasing 333
8.3 Cost Estimate 333

Bibliography 335

Appendices [*to be included in 100 percent final submittal*]
- Appendix A: Glossary of Terms and Acronyms
- Appendix B: List of Technical Reviewers
- Appendix C: Agency and Stakeholder Correspondence
- Appendix D: Finding of No Significant Impact (FONSI)

Foreword

To be completed by Midwest Regional Office

Acknowledgements

National Park Service – Midwest Regional Office

Tonya Bradley, Contracting Officer
Bill Harlow, Chief of Historic Architecture and Landscapes
Nick Chevance, Regional Environmental Coordinator
Marla McEnaney, Historical Landscape Architect
Rachel Franklin Weekley, Historian/Cultural Resources
Ann Bauermeister, Archeologist

National Park Service – George Washington Carver National Monument

James R. Heaney, Superintendent,
Lana K. Henry, Management Assistant
Randall Becker, Supervisory Park Ranger and Supervisor of Interpretation and Education
Matt Henderson, Supervisor Facility Operations Specialist
Leslie Sadler, Administrative Officer

Bahr Vermeer & Haecker Architects, Ltd.

Dan Worth, IDIQ Manager and Historical Architect

John Milner Associates, Inc.

Laura Knott, Principal Landscape Architect
Jane Jacobs, Project Manager and Project Landscape Architect
Liz Sargent, Historical Landscape Architect
Christina Osborn, Landscape Designer

Wiss, Janney, Elstner Associates, Inc.

Deborah Slaton, Historian
Kenneth Itle, Historical Architect
Tim Penich, Graduate Historical Architect/Historian

Historic Resources Group

Melissa Dirr Gengler, Historian

Chapter 1: Introduction

1.0 Overview

The George Washington Carver National Monument, located near Diamond, Missouri, was authorized by Congress on July 14, 1943. It was formally dedicated on July 14, 1953, to memorialize and preserve the 240-acre birthplace home of George Washington Carver. Dr. Carver was one of the leading agricultural scientists, educators, and humanitarians in America during the late nineteenth and early twentieth centuries.

Planning for the national monument began in 1951 when the National Park Service (NPS) asked regional historian Merrill Mattes to take the lead in preparing a basic planning document or master plan development outline for the new unit. His initial description of the essential NPS goal of making the unit into a memorial site states:

> Preservation of the George Washington Carver birthplace ensures the lasting memorialization of a humble man whose practical and momentous achievements in the field of scientific agriculture and chemurgy led to his world-wide fame. Here was a signal triumph of the human spirit, for Carver rose to this eminence from a dubious beginning as sickly, penniless, orphan slave boy, endowed only with a thirst for learning and an abiding sense of kinship with the Creator. The flowering of his many-faceted genius, as botanist, soil scientist, chemist, educator, and artist reflects luster upon a race which has made remarkable strides toward dignity and self-sufficiency since Abraham Lincoln signed the Emancipation Proclamation. The Monument is a tribute, not only to a man, but to an eloquent expression of the American faith.[1]

Though Mattes was a historian, he went on to identify the basic planning problem for the new park unit, which was how to convey the significance of the site, given that the principal historic features associated with Carver's early life—the birthplace cabin and the original Carver farm house—were both gone. Restoration would be difficult because no plans or photographs of these building were known to exist. What the national monument did have was the land itself, with its mix of native woods, open meadows, and planted walnut grove; the birthplace cabin site; the Carver family cemetery; and the later Moses Carver house.[2] This same issue challenges the park today and is one of the primary goals for this study.

Thus NPS began the process of assessing and establishing core management direction for the George Washington Carver National Monument. Management issues included: purpose of the unit; visitor use and experience; research and planning priorities; and the interplay of cultural and natural resource protection. Master plans were developed in the 1950s and 1960s; statements for management in 1971, 1984, and 1994; and the general management plan in 1997. The General

1. Diane Krahe and Theodore Catton, *George Washington Carver National Monument Administrative History* (2014), 96, quoting Merrill Mattes, "Master Plan Development Outlines, George Washington Carver National Monument," April 1952, File D18, RDF, GWCA.

2. Ibid., 96.

Management Plan (GMP) for the park established a new core management direction by identifying the commemoration of Dr. Carver as the key objective of park management and provided a sound planning base for future management decisions for the site. This GMP also laid out the need to improve the interpretive program, which eventually led to the Long-Range Interpretive Plan (LRIP) that was completed in 2007. This plan defined the park story in a set of themes, and sub-themes to assess how completely and effectively the park's cultural and natural resources were being used to convey the park story.[3]

Management of both natural and cultural resources at the national monument has been a part of the planning process since the 1980s, including the initiation of the prairie restoration program and management recommendations for the restoration and maintenance of prairie areas within the park boundaries. From 1994 to 2011, four scientific assessments of the progress of the prairie restoration found difficulties with the program but offered no suggestions for modifications.[4] Prairie management continues to be an issue for the park and part of the directive for the development of this CLR/EA.

In the years after the GMP was completed, the park endeavored to find some sort of blend of natural and cultural resource management that would support the memorial emphasis and address the issues of prairie management and maintenance and preservation of cultural landscape features. In 1999, *Springs of Genius: An Integrated Management Plan for George Washington Carver National Monument* was completed as a pilot project for the integration of natural and cultural resource management. In 2010, the Cultural Landscape Inventory (CLI) was completed for George Washington Carver National Monument, which provided a comprehensive look at the historical development and significance of the landscape, placing it in context of the site's overall significance. In the CLI, the conceptual framework for George Washington Carver National Monument was as a historic designed landscape:

> . . . a composite of cultural and natural features dating back to Carver's boyhood, combined with post-1951 built features. Even the present-day vegetation and the Williams Pond were part of this cultural landscape inasmuch as the Park Service had manipulated the vegetation and modified the pond to serve the memorial's purpose.[5]

After this report was completed, the National Park Service submitted it to the State Historic Preservation Officer (SHPO) with the recommendation that the cultural landscape was eligible for listing on the National Register of Historic Places. The SHPO concurred.[6]

In 2013, the National Park Service engaged Bahr Vermeer Haecker Architects (BVH) of Lincoln, Nebraska, in association with John Milner Associates (JMA) of Charlottesville, Virginia; Wiss, Janney, Elstner Associates, Inc., (WJE) of Northbrook, Illinois; and Historic Resources Group, Inc. (HRG) of Lincoln, Nebraska, to prepare a Cultural Landscape Report (CLR) and Environmental Assessment (EA) to document and record the history and current conditions of George Washington Carver National Monument, and guide its future treatment and use. The goals and objectives of the report include:

- Follow GMP directives to determine the best approach to managing the park's cultural and natural resources in accordance with the park's legislative mandate
- Provide guidance for rehabilitating the landscape and its associated structures to enhance the memorial nature of the site
- Discuss overall management objectives for the park as documented in planning studies and other research documents

3. Ibid., 117, 120, 197.
4. Ibid., 239.
5. Ibid., 276.
6. Ibid., 276–277.

- Present a phased strategy for long-term management based on the landscape's significance, existing condition, and use

- Develop treatment recommendations that will address the entire 240-acre cultural landscape, balancing historic landscape protection with natural resource efforts, and supporting and enhancing interpretive programs

- Focus rehabilitation treatment on providing opportunities for the public to experience the peaceful environment and reflect on Dr. Carver's life

The CLR/EA was developed within a framework of previously-prepared resource inventories and planning studies, in particular, those completed by Heartland Natural Resource Monitoring Program and Missouri Resource Assessment Partnership (MoRAP). Three documents in particular have served as a foundation for the CLR/EA: the GMP (1997); the LRIP (2007); and the 2007 CLI developed and written by NPS. The CLR/EA drew upon these studies in the documentation of the park's landscape, assessment of its integrity, and development of landscape treatment recommendations.

1.1 Purpose and Need for the Project

The purpose of this project is to assist the NPS in identifying the best approach to managing the cultural and natural resources comprising the historic landscape at George Washington Carver National Monument in accordance with the park's legislative mandates. The proposed action alternatives and associated treatment recommendations address the entire 240-acre landscape and will assist the NPS with managing the historic property, balancing cultural and natural resource stewardship, and supporting and enhancing interpretive programs as well as the overall visitor experience.

The proposed action alternatives and treatment recommendations were developed within the context of a CLR, which provides the park with a guiding philosophy for management of both cultural and natural historic resources that can be directly tied to significant periods and themes in American history, namely the life of notable scientist, educator, and humanitarian Dr. George Washington Carver.

The CLR/EA presents an approach to long-term management of the George Washington Carver National Monument cultural landscape that addresses the treatment needs of specific areas identified by NPS. They include:

- the approximately 20-acre Development Subzone, an area of the park requiring intensive management, and including the visitor center/maintenance building complex, the area immediately adjacent to the memorial entrance, the picnic area, and the 1-mile Carver Trail;

- the 30-acre parcel of property acquired by the park in 2006;

- the prairie units and the various vegetation species that cover the site based on recommendations from the Missouri Resource Assessment, the Heartland Inventory and Monitoring Program, and the Heartland Network Invasive Plant Management Plan/EA Assessment (IPMP/EA);

- the prairie units restoration and management practices, including type of prairie and the number of acres that should be maintained in prairie;

- the prairie units management and relationship to viewsheds;

- the woodlands and open space/savanna management to address differences between the contemporary landscape and the former spatial patterns of the park;

- the vegetation management for the picnic area grove; and

- the overall justified approach to land cover management and its connection to interpretation and the visitor experience.

In addition to treatment recommendations, other improvements to the site are needed. Examples include:

- universal access throughout the George Washington Carver National Monument including specifically identified trail sections that may need to be adjusted due to steep slopes or surfacing material;
- other accessibility issues, including those identified in the 2014 site assessment by the National Center on Accessibility;
- recommendations for treatment of Williams Pond and the contemplative trail that surrounds it;
- potential restoration of the stream banks currently covered with rip-rap in order to prevent future erosion and maintain water quality in the streams;
- accommodation of overflow parking on the site, including location, extent, access and surface treatment;
- cemetery wall repair, maintenance, and management; and
- potential expansion of the Carver Trail.

NPS has recognized the need to better integrate commemoration, interpretation/education, and the treatment and management of the landscape. NPS recommendations in a 1964 park master plan suggested restoration of the landscape that existed when George Washington Carver was a boy on the Moses Carver farm. This recommendation has never been implemented due to a lack of historical documentation of landscape features during the period circa 1865–1876. The master plan did, however, state that the principal asset of the national monument was the land itself, as it was an expression of those qualities which characterize Carver's greatness—simplicity, naturalness, and quiet beauty. With the development of the GMP in 1997, the park recognized how the site and its context had changed since 1964, requiring the formation of a new set of management objectives for the park, including managing resources to help interpret how the boyhood farm and surrounding area influenced Carver as an adult. This led to the further evaluation of the human, natural, and cultural resources and clarifying the utilization of these resources for interpretation, education, and commemoration.

Since 1997, a number of planning studies have been conducted to support appropriate treatment of the site's cultural landscape and its natural features. None, however, has resulted in specific tangible documentation of the property's character and composition during the targeted restoration period. There remains a need to further evaluate the feasibility of reconstruction of landscape features based on existing historical documentation and extant features, as well as the relationship between existing prairie and woodland features and historic agricultural cover types. There is also a need to address what these areas should look like and how they should be used to tell the story of George Washington Carver's life. Questions also remain concerning the loss of agricultural and ethno-botanical features associated with nineteenth century use of the property, such as the persimmon grove and apple orchard, and the feasibility of restoring these cultural landscape features.

1.2 Scope of the Report

The CLR/EA is the primary document used to guide management and stewardship of the cultural landscape and its individual resources, and to inform treatment, management, and maintenance of the grounds and buildings at George Washington Carver National Monument. The intent of the combined CLR/EA is to provide a holistic and integrated plan that addresses operational needs, while also recognizing that the mission of the NPS is to provide a rich and authentic visitor experience. It is also the intent of the combined document to ensure that long-term

preservation and stewardship objectives are met to the maximum extent practicable.

The CLR portion of the document includes detailed documentation of the historical development of the national monument, evaluation of its existing conditions, analysis and evaluation of landscape characteristics, and preparation of treatment recommendations. The CLR builds upon the numerous studies and documents that exist for George Washington Carver National Monument.

The EA portion of the document evaluates potential impacts on environmental, socioeconomic, and cultural resources through the proposed treatment/action alternative (preferred alternative), additional action alternatives, and a no action alternative. The EA provides the decision-making framework that analyzes a reasonable range of alternatives to meet objectives of the proposed action and evaluates potential issues and impacts to the park's resources and values. The EA also identifies mitigation measures to lessen the degree or extent of any identified impacts.

The combined CLR/EA includes the following chapters:

- Introduction
- Site History and Evaluation of Significance
- Existing Conditions, Comparative Landscape Analysis, and FMSS Maintained Landscapes data
- Affected Environment
- Alternatives and Treatment
- Impact Analysis and Environmental Consequences
- Consultation and Coordination
- Implementation, Phasing, and Work Orders
- Bibliography

1.3 Methodology

The CLR/EA was conducted in phases. The first phase involved a pre-proposal meeting at the park to discuss the needs of the project. The second phase involved a second meeting at the park to discuss project organization, conduct background research and field investigation, and develop initial public scoping for the EA. The site visit also resulted in the identification of draft materials for entry into the Planning, Environment & Public Comment (PEPC) database and for NEPA compliance tracking, preparation of press releases, and to develop a list of stakeholders and a strategy for consultation.

The phase two site visit was followed by initial report production and preliminary consultation with agencies required as part of the EA compliance process to meet Section 7 of the Endangered Species Act (U.S. Fish and Wildlife Service, state natural resource management agencies, and state natural heritage inventories), Sections 106 and 110 of the National Historic Preservation Act (State Historic Preservation Office and Advisory Council for Historic Preservation), and other relevant regulations and reviews.

Following initial report preparation and park review of the document including draft alternatives/treatment recommendations, the team facilitated stakeholder meetings held at the park on May 14, 2014. Stakeholders included the State Historic Preservation Officer (SHPO), Tribal Historical Preservation Officers (THPO), other federal and state agencies, and friends of the park. The preferred alternative was developed based on the additional input from stakeholders and NPS review and comments.

The CLR/EA was then developed to 95 percent completion and reviewed by the park, Midwest Region staff, and the Missouri SHPO, and tribal THPOs. After review of the 95 percent draft, review comments were addressed and the 95 percent draft CLR/EA was made available for public and agency review by NPS on the PEPC site. After public review and response to

comments, the 100 percent document will be prepared for final review and circulated through the park and MWRO in order to get approval of the FONSI.

The specific methodologies utilized to prepare the CLR and EA components of the report are outlined below.

1.3.1 Cultural Landscape Report

The CLR for George Washington Carver National Monument was prepared in accordance and compliance with the guidance offered in the most recent versions of relevant federal mandates, executive orders, policies and guidelines, as well as applicable state, local, and national building and life safety codes, including:

- A Guide to Cultural Landscape Reports: Contents, Process, and Techniques
- Cultural Landscapes and NPS Facility Management, Landscape Lines No. 17
- The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes
- NPS Director's Order 10A: Design and Construction Drawings
- NPS Director's Order 28: Cultural Resources Management Guidelines
- NPS Director's Order 77: Natural Resource Protection; Reference Manual 77: Natural Resource Management
- Architectural Barriers Act of 1969; Rehabilitation Act of 1973; Americans with Disabilities Act of 1990
- NPS Management Policies 2006
- NPS Guiding Principles of Sustainable Design
- National Register Bulletin: How to Apply the National Register Criteria for Evaluation
- National Register Bulletin: Guidelines for Documenting and Evaluating Rural Historic Landscapes
- National Register Bulletin: Telling the Stories: Planning Effective Interpretive Programs for Properties Listed in the National Register of Historic Places
- National Historic Preservation Act of 1966, as amended; Sec. 106 and 110

In addition, the methodology used by project team members in preparing each component of the CLR portion of this document is described in detail below.

Background Research and Data Collection. Prior to visiting the site, CLR team members began to collect documents and other materials pertaining to the project and site. In addition to assembling available research materials from the Midwest Regional Office of the NPS, the team acquired the Cultural Landscape Inventory for the park and the NPS List of Classified Structures for park resources. The team also obtained secondary sources addressing the history of the site and region, and studies, maps, and plans available from the NPS Denver Service Center Technical Information Center. Also, all previously completed natural resource studies by Heartland Natural Resource Monitoring Program and MoRAP were provided to the team by park staff. In preparation for field investigations, project personnel requested Geographic Information Systems (GIS) files from the park and the Midwest Regional Office to use in developing base maps for field inventory.

Base Mapping. In anticipation of conducting fieldwork, the team prepared an AutoCAD base map of the park by compiling information available from GIS mapping, aerial photography, and historic site plans. The draft base map was later refined and updated using the information collected during field investigations and from consulted sources. GIS data and the AutoCAD map were also used to generate diagrams and other report graphics.

Start-up Meeting. 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.

Field Investigations. As part of the site visit conducted on November 5 and 6, 2013, CLR team members conducted preliminary field investigations to document landscape resources associated with the park. Team members photographed primary and representative landscape features, both cultural and natural, and annotated draft base maps with observations about materials, resource condition, and corrections to the mapping files. Where available mapping was lacking in detail, team members prepared sketch maps that were later used to enhance the electronic files.

Historical Landscape Documentation and Site Physical History. CLR team members also conducted research at the park archives following the start-up meeting. The focus was on historic records addressing physical park development such as maps, plans, and photographs. The site physical history was drafted based upon review of the materials collected during these various research efforts. The information was first organized into a site history chronology of the physical events at George Washington Carver National Monument. The chronology was then used to identify a series of definable historic periods for the park's evolution. Each period was described through historical narrative, supplemented with historic maps, photographs, and plans.

Historic Period Plan Preparation. Historic period plans of the George Washington Carver cultural landscape were prepared to represent the farm during Dr. Carver's childhood (circa 1865–1876); the years of initial park planning through the official opening of the park (1943–1953); and the early park development period (1953–1960).

The CLR team developed the historic period plans through registration of historic mapping sources with existing conditions information; preparation of the existing conditions base map thus preceded work on the period plans. The project team used all available historic photographs and written descriptions of the landscape found in the research materials collected for the project to develop details of the period plans. Limited secondary sources were also used to corroborate information and to generate queries for primary sources. Secondary sources were typically evaluated for their credibility and utilized with caution.

Existing Conditions Documentation. The documentation of existing conditions was developed through preparation of cross-referenced narrative, graphic, and photographic materials, organized in accordance with the framework established in National Register Bulletins: *Guidelines for Documenting and Evaluating Rural Historic Landscapes* as well as the NPS's *A Guide to Cultural Landscape Reports*. Existing conditions resource information was organized into a series of landscape characteristics.

The CLR documentation includes information derived from existing conditions base mapping, field investigations, review of photographs taken in the field, and examination of park planning documents, park files, and other relevant cultural and natural resource documents received from the

NPS or acquired through research. The existing conditions documentation includes photographs of representative landscape features, which are referenced in the text.

Feature condition assessments were made using the categories suggested by the *Guide to Cultural Landscape Reports*: Good, Fair, Poor, and Unknown.[7] Where relevant, specific condition-related observations made in the field are reflected in the report.

A table of resources was developed and is included at the end of Chapter 3. The table indicates the relationship between features identified on behalf of the CLR and those tracked by NPS as part of the Facility Management Software System (FMSS), a numbering and naming convention used within the park for everyday maintenance issues.

Evaluation of Significance. George Washington Carver National Monument was listed in the National Register of Historic Places in 1976. The nomination, currently being updated, indicates that the park is a historic district significant for its associations with George Washington Carver. The property is the first national park unit to honor an African American and a person other than an American president. The park is thus a significant commemorative site that marks, protects, and honors the inspirational work and career of George Washington Carver, who was born on the property into slavery. The significance evaluation provided in the National Register nomination was considered in conjunction with the guidance provided in the National Register Bulletin: *How to Apply the National Register Criteria for Evaluation*. The CLR considered the potential to update the nomination based on additional findings provided by the recent research and documentation.

As noted in the draft National Register nomination Additional Documentation, George Washington Carver National Monument is nationally significant under National Register Criterion A for its association with events that have made a significant contribution to the broad patterns of our history, and under Criterion B for its association with the life of Dr. George Washington Carver, a person significant in our past. It is also significant under Criteria Consideration C, a birthplace or grave, as the birthplace of Dr. George Washington Carver, and under Criteria Consideration F, as a commemorative property.[8]

As noted in the draft National Register nomination Additional Documentation, the national monument is significant in the areas of science, education, community planning and development (park), and conservation.[9]

Comparative Analysis of Historic and Existing Conditions. To better understand the relationship between the existing park landscape and the character of the landscape present during the period of significance identified, the CLR team prepared a comparative analysis of historic and existing conditions. The analysis focused on extant features, their dates of origin, and their evolution over time. The three primary goals of the comparative analysis were to:

- Understand which features survive from the period of significance
- Establish the basis for an integrity assessment
- Provide an understanding of the similarities and differences between historic and existing conditions to serve as the basis for the development of a well-grounded treatment plan for the cultural landscape.

7. Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan, *A Guide to Cultural Landscape Reports; Contents, Processes, and Techniques* (Washington, D.C.: Department of the Interior, 1998), 67.
8. Jason H. Gart, National Register Additional Documentation, draft, January 31, 2014.
9. Ibid.

Identification of Contributing and Non-contributing Resources. Based on the findings of the comparative analysis of historic and existing landscape conditions, the CLR identifies those resources that contribute to its National Register significance, those that are non-contributing, and those that are missing from the historic period of significance. Chapter 3 of the document details the existing resources, including those that are missing. Missing resources were ascertained from existing documents including archeological studies and located on the period plans. Missing resources are also discussed as part of restoration and interpretation in the range of alternatives.

Assessment of Integrity. The CLR summarizes the site's overall integrity and then assesses its integrity in accordance with the seven aspects—location, design, setting, materials, workmanship, feeling, and association—identified in National Register Bulletin: *How to Apply the National Register Criteria for Evaluation*.

Treatment Plan. Work on the treatment plan proceeded from the overarching guidance of the General Management Plan (1997) and will correlate with the Long Range Interpretive Plan to provide guidance on how the landscape can support and enhance interpretive themes. Guidance for treatment was also afforded during the project start-up meeting held in November 2013, and subsequent consideration of a full range of alternatives. Work on the treatment plan was developed in coordination with the development of action alternatives required for the EA process. Treatment alternatives were prepared early on in the project in order to engage the park and stakeholders in an evaluation process that considered all positive and negative outcomes associated with a range of options, allowing for a vetting process intended to encourage consensus and informed decision making. The treatment plan addresses the goals, needs, and objectives for the project identified in meetings and consultation with stakeholders. The treatment plan is also based on the findings of the comparative analysis prepared as part of the CLR and the National Register-level significance evaluation.

1.3.2 Environmental Assessment

The EA methodology for this portion of the document follows the directives set forth in Director's Order 12 from the NPS. The methodology of the EA is summarized below.

Purpose and Need. The "purpose" of the project is a statement of goals and/or objectives that George Washington Carver National Monument intends to fulfill by taking action. The "need" describes the conditions prompting the NPS to consider action and explains why the monument is proposing the action at this time. Appropriate maps showing the project area and vicinity are included.

Background. This section includes a written narrative of the park purpose/significance, graphic descriptions of the study area, and documentation of the management and planning context for George Washington Carver National Monument. The process of developing the issues and impact topics for the EA portion of the document is articulated. Relevant impact topics were selected to help focus the affected environment and environmental consequences sections. Potential impact topics were evaluated and classified as either "Impact Topics Selected for Detailed Analysis" or "Impact Topics Dismissed from Detailed Analysis."

Affected Environment. Chapter 4: Affected Environment describes the existing environment potentially affected by the project alternatives. Consistent with Council of Environmental Quality (CEQ) regulations (40 CFR 1502.15), this chapter presents a concise and focused description of the environment for George Washington Carver National Monument. Information focuses on sensitive or controversial resources and/or those resources anticipated to incur project-related impacts.

Alternatives. In this CLR/EA document the development of alternatives is combined within the treatment plan section in Chapter 5: Treatment Alternatives. A written description of the treatment alternatives, including a no action alternative and several action alternatives, is provided. The alternatives are also presented in graphic plans. The alternatives were developed with consideration of a reasonable range of actions. An NPS preferred alternative was identified before the document was made available for public comment. The alternatives discussion also includes identification of the "environmentally preferred alternative" per NPS *Director's Order 12 Handbook*, Section 2-7 (D) and (E), for comment during the CLR/EA public review. A description of alternatives considered but dismissed is also provided. In the narrative discussion, these alternatives are identified and described, including justification for eliminating them from further analysis.

Environmental Consequences. Chapter 6: Impact Analysis and Environmental Consequences provides an analytic evaluation of the potential effects or impacts of each of the alternatives on the resources described in the affected environment section. The objective analysis and disclosure of potential environmental impacts of the proposed action and alternatives facilitates informed decision-making. This analysis and disclosure of impacts is provided in this section, presenting the effects of each alternative on the various components of the affected environment.

Impact Comparison Matrix. The impact matrix is in a table format that allows for easy comparison of the various project alternatives (including no action).The matrix presents a concise summary of each alternative's potential effects by impact topic.

Consultation and Coordination. This section of the EA presents an overview of public involvement activities implemented as part of the environmental assessment process. Documentation of stakeholder participation is included as well as persons, organizations, and agencies contacted for information and assisting in identifying important issues, developing the alternatives, or analyzing impacts.

Record of Decision/Finding of No Significant Impact. Based on internal and public review, the approved decisions document will be signed by the park superintendent and sent to the regional environmental coordinator, project manager/COTR and park contact for a seven-day review period. The decision document complies with the guidance found in *Director's Order 12 Handbook*.

Compliance with Federal or State Regulations. The EA portion of this document including the alternatives is technically and legally defensible and in full compliance with federal mandates, Director's Orders, policies and guidelines including:

- National Environmental Policy Act (NEPA) of 1969, as amended
- National Park Service Organic Act of 1916, 1 U.S.C. 1-4, et seq.
- Council of Environmental Quality (CEQ) (40 CFR 1508.9)
- NPS Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision-Making
- Protection and Enhancement of Environmental Quality, Executive Order 11514, as amended by E.O. 11991
- Clean water Act of 1977, as amended, Sec. 401, 402 and 404(b)(1)
- Endangered Species Act of 1973, as amended 16 U.S. C. 1531-1543
- Fish and Wildlife Coordination Act of 1934, as amended (16 U.S. C. 661–667)
- Invasive Species, Executive Order 13112
- The Architectural Barriers Act (as amended)

In addition, the EA was prepared in compliance with the requirements of Section 106 of Historic Preservation Act (NHPA), in accordance with the Advisory Council on Historic Preservation's (ACHP) regulations implementing Section 106 (36 CFR Part 800.8, Coordination with the National Environmental Policy Act).

1.4 Historical Summary

George Washington Carver National Monument is significant as the birthplace and childhood home of George Washington Carver. The farm belonging to Moses and Susan Carver was young George's home until he was about eleven years old. It was on the farm that he had the opportunity to pursue his curiosity about the world around him.[10] In addition to his farm-related tasks, George Washington Carver's interest in nature was developed during his time on the farm as he explored the property, collecting various flowers, rocks, and insects. He also taught himself to read during his early years on the farm.

In 1876, young George was permitted to attend the Neosho Colored School in nearby Neosho, Missouri. His enrollment at the school marked the end of his time on the Moses Carver farm.[11]

After the death of Moses Carver in 1910, the property was sold to Samuel Warden. Warden owned the farm for two years and it was then purchased by C. M. Shartel in 1913. During the Shartel tenure on the property, various tenants and employees lived there. Mr. Shartel was actively engaged in the business of raising thoroughbred cattle, resulting in a series of changes to the landscape. There were many buildings and structures on the Shartel property associated with the agricultural and grazing land uses prevalent over the site, as well as residential structures for the family and farm employees.

The early 1940s saw the beginning of interest in establishing a national monument at the birthplace of George Washington Carver. In 1941, the St. Louis branch of the National Association for the Advancement of Colored People (NAACP) submitted a proposal to establish a memorial to Carver at his birthplace. At the time they were informed that construction of a monument to a living man was a conflict with NPS policy. Dr. Richard Pilant, a social science professor at Washington University in St. Louis, also began to lobby actively for establishment of such a monument. The first federal legislation relating to the establishment of the George Washington Carver National Monument at the Moses Carver farm was introduced in 1942. No immediate action was taken until after George Washington Carver died on January 5, 1943. Following his death, new bills were introduced to Congress and on July 14, 1943, the monument was authorized. The legislation specifically authorized the Secretary of the Interior to build a museum, construct roads and monuments, and erect tablets within the boundaries of the park. Acquisition of the property was delayed by World War II and a dispute over the value of the farm. Ultimately, the federal government proceeded with condemnation of the property. During this interim, from 1949 to 1954, Sidney J. Philips and the George Washington Carver National Monument Foundation leased the farm and opened it to visitors. In 1950, Congress amended the 1943 act and authorized additional funds for land acquisition. This enabled the Secretary of the Interior to acquire 210 acres of the original 240-acre farm. On September 25, 1952, the first superintendent and historian arrived on the site.

---

10. *George Washington Carver National Monument: General Management Plan* (National Park Service, June 24, 1997).
11. Jason H. Gart, *He Shall Direct Thy Paths: The Early Life of George W. Carver, Historic Resource Study* (Washington, D.C.: National Park Service, Department of the Interior, 2014), citing Paul L. Beaubien and Merrill J. Mattes, "George Washington Carver National Monument: The Archeological Search for George Washington Carver's Birthplace," *Negro History Bulletin* 18, no. 2 (November 1954), 81–86.

Dedication of the George Washington Carver National Monument took place on July 14, 1953. NPS efforts at the site through the 1950s, including removal of deteriorated agricultural outbuildings, archeological research, presentation to the park of the cast concrete bust of George Washington Carver, the reconstruction of the wall around the Carver family cemetery, and the development of the Carver Trail.

In the summer of 1958, the park's Mission 66 prospectus was approved. Included in the document were plans to construct a visitor center and museum building. In addition, plans were made to modify the route of the Carver Trail that took visitors to the site of the birthplace cabin, the open fields once farmed by the Carver family, the 1881 farmhouse, and the Carver family cemetery.

In the spring of 1960, buildings comprising the former Shartel farm were removed; the main house was moved to another property nearby, where it remains today, while many other buildings were demolished. The new visitor center was dedicated in July 1960 and a cast bronze statue of George Washington Carver as a boy was also unveiled.

The final 30 acres of land that were part of the Moses Carver farm were donated by a private land owner to the Carver Birthplace Association in 2003. The Carver Birthplace Association subsequently transferred the deed for this land to the NPS on June 22, 2005. Mitigation of tailings and other potentially hazardous deposits associated with lead and zinc mining of the parcel was completed in 2006. In August 2007, the expanded and renovated visitor center was dedicated. The renovation included a 6,700 square foot addition to the 1960 building, with new interactive and extended museum space, classrooms, an expanded theater, terrarium, archives, and library, as well as a tornado shelter.

Today, the site contains a visitor center, museum, maintenance facilities, administrative offices, storage structures (former staff residences and seasonal housing), a system of restored prairies, three streams, two springs, the Carver family cemetery, the Carver Trail, the 1881 Moses Carver house, and extensive interpretation of site features and the life of Dr. George Washington Carver.

1.5 Park Purpose/Significance

On July 14, 1943, the bill authorizing the establishment of the national monument passed and became Public Law 148 of the 78th Congress. Congress directed the NPS to maintain and preserve George Washington Carver's birthplace as a suitable and enduring public memorial in his honor. This was the first time in United States history that a birthplace site was designated as a national monument to someone other than a United States President and the first time a unit of the National Park System was established to honor the contributions of an African American.

The George Washington Carver National Monument derives its significance primarily from its association with Dr. George Washington Carver as his birthplace and boyhood home, where he spent his formative years that set him on the road to becoming one of this nation's most distinguished scientists, educators, and humanitarians. It preserves a place known to have been influential in shaping the personality of a man who played an important role in the social and agricultural history of twentieth century America.

The national monument was established to preserve the birthplace and commemorate the rise from slavery of Dr. George Washington Carver. His life demonstrates the opportunities afforded in the United States to men of ability and energy, regardless of their origins. His accomplishments are today a living part of America's heritage. The national monument memorializes the life, accomplishments and contributions of Dr. Carver, and preserves the landscape setting of the Moses Carver farm where George was born into enslavement and spent his early years. The landscape captures the ambiance in which Dr. Carver began his earliest scientific observations of the natural world around him. The focus of park management has traditionally been on interpreting the landscape setting that influenced the young and impressionable child

who became a highly recognized research scientist, and how that setting contributed to his life's achievements (Figure 1 and Figure 2).[12]

In the LRIP (2007) the park significance is summarized below.

- The national monument preserves Dr. Carver's birthplace and childhood home, where the experiences of his formative years influenced his journey to becoming one of this nation's most distinguished scientists and humanitarians.

- The national monument is the nation's first memorial and unit of the National Park System to commemorate the achievements of an African American.

- The national monument is the first birthplace national monument of an individual other than a United States President.



FIGURE 1. Interpretation at George Washington Carver National Monument of the young Carver's early relationship to the natural world around him.



FIGURE 2. Landscape setting of the Moses Carver farm and current interpretation.

1.6 Description of the Study Area

George Washington Carver National Monument is located in Section 7 of Township 26 North, Range 31 West of the Fifth Principal Meridian, near the community of Diamond in Newton County, Missouri (Figure 3 and Figure 4). Joplin, Missouri, is the closest city, located approximately 16 miles to the northwest. The region is situated along the western edge of the Ozarks, part of the Springfield Plain, a vibrant and ecologically diverse subsection of the Ozark Highlands ecoregion.[13] The park is accessed via Carver Road from County Highway V (Figure 5). Visitors generally travel to the site from Exit 11A off Interstate 44 (primary east-west route through southwest Missouri), or Exit 35 off Interstate 49 (primary north-south route through southwest Missouri). Interstate 44 and Interstate 49 each pass within 5 to 8 miles of the park.

12. George Washington Carver National Monument Cultural Landscape Inventory (NPS, 2010), 19.

13. Gart, *He Shall Direct Thy Paths*.

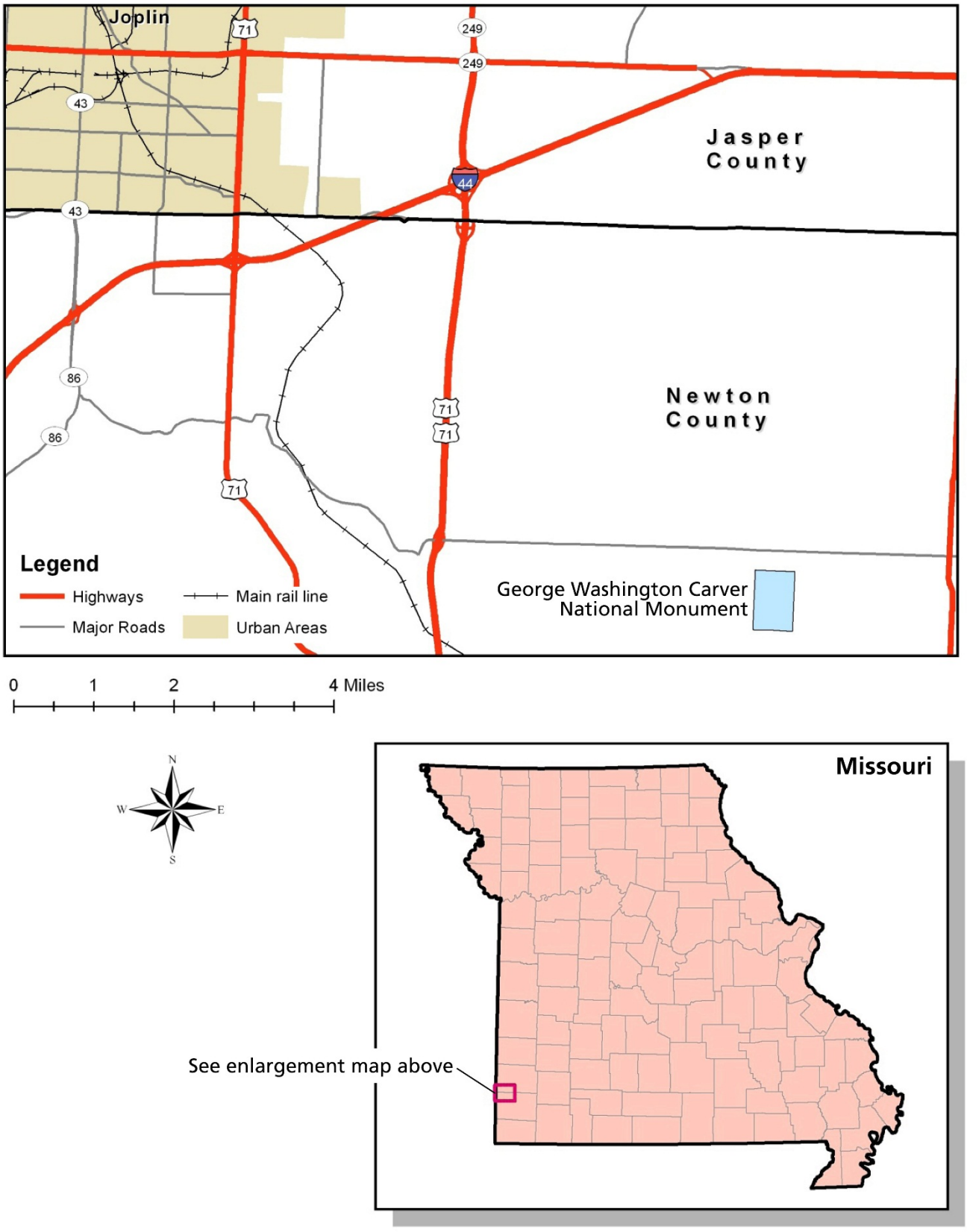


FIGURE 3. Location of George Washington Carver National Monument.

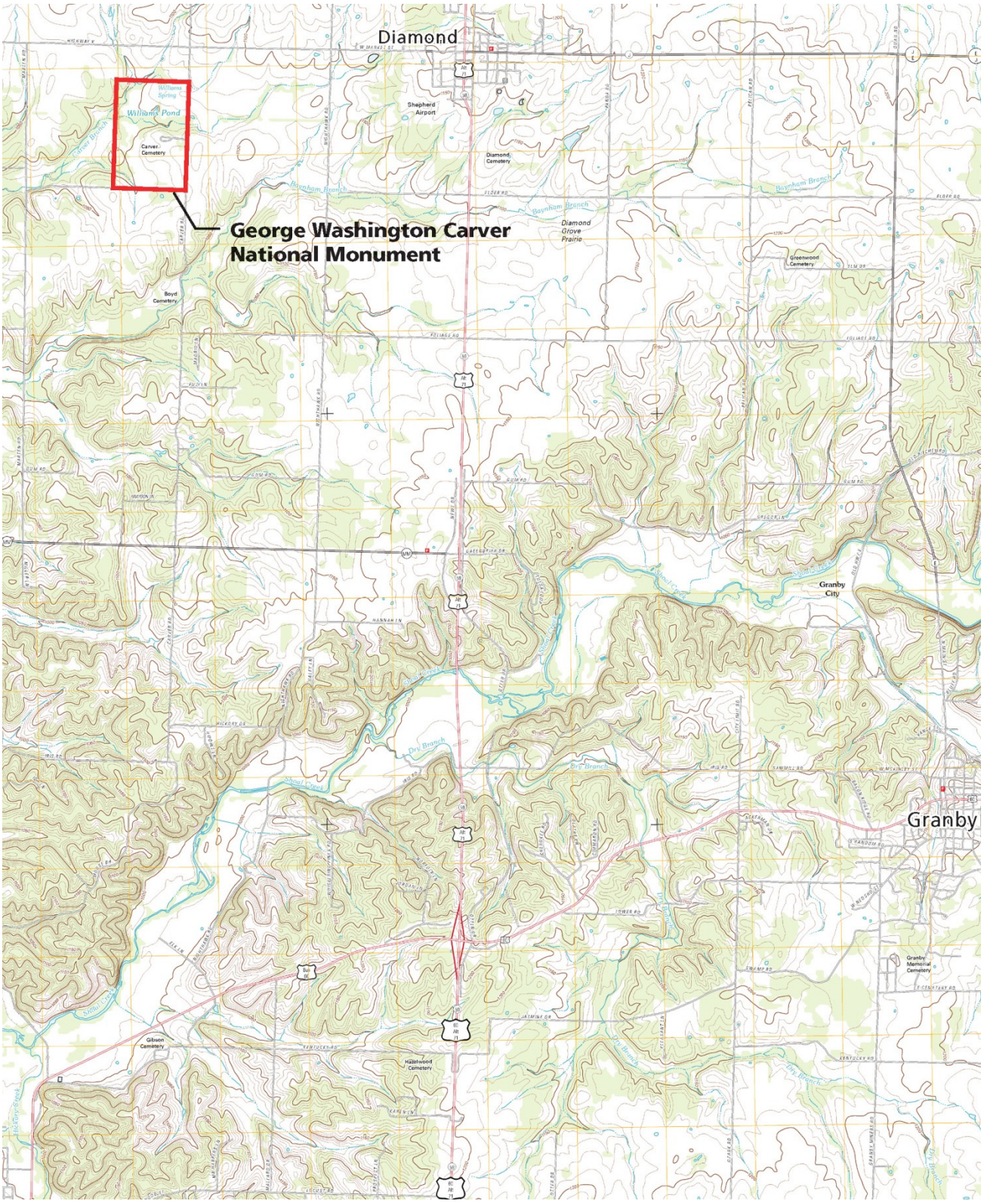


FIGURE 4. USGS map of the national monument, showing its location in relation to Granby and Diamond, Missouri.



FIGURE 5. Entrance to George Washington Carver National Monument from Carver Road.

The national monument encompasses 240 acres of land between Carver Road to the east and Elder Road to the south. Privately held farmland edges the park to the north and east. The primary features of the park include a visitor center located at the end of a 1/4-mile entrance drive, and a mile-long interpretive trail that provides access to several features of importance to George Washington Carver's boyhood (Figure 6 and Figure 7). Much of the park is maintained in restored prairie, affording long views across the landscape (Figure 8). Three small streams pass through the park: Carver, Harkins, and Williams branches (Figure 9). Carver Spring feeds Carver Branch, while Williams Spring, not currently visible, is the source for Williams Branch and the man-made Williams Pond. These small spring-fed streams flow across the central portion of the park from east to west, and through the northwestern corner of the park. The stream corridors that pass through the center of the property, as well as the uplands to the north, are generally wooded and divide the park into quadrants. Buildings constructed during the late 1950s and early 1960s for park housing and administration needs are clustered along Carver Road, out of sight of most park activity areas.



FIGURE 6. Visitor center in the landscape of the national monument.



FIGURE 7. This grove of large deciduous trees is the setting for the picnic area and views to the visitor center.



FIGURE 8. Landscape of restored prairie and woodlands at George Washington Carver National Monument.



FIGURE 9. Carver Branch runs east/west through the landscape of the national monument.

1.7 Related Planning Documents

Many plans and studies contributed to developing the current treatment plan/alternatives for George Washington Carver National Monument. These include NPS research, management, policy, and other documents as discussed below.

Management Policies 2006. NPS *Management Policies 2006* provides guidance for all management decisions, including those related to cultural resources. Cultural resources, including cultural landscapes and historic structures, are addressed in Section 5.0, which states that the NPS cultural resources management program involves ". . . stewardship to ensure that cultural resources are preserved and protected, receive appropriate treatments (including maintenance) to achieve desired conditions, and are made available for public understanding and enjoyment."[14]

In addition to NPS management policies, the following park-specific documents provided information on park resources and management strategies and priorities.

***Master Plan for the Preservation and Use of George Washington Carver National Monument* (NPS 1961–1964).** This study called for the principal goal of recreating the historic scene of the 1860s and 1870s through continued research. As part of this study, the NPS recommended that the site's landscape be restored to the setting present when Carver was a boy. This recommendation has never been carried out due to lack of detailed information for an accurate restoration of structures and landscape features and the associated management and maintenance of a farm restoration.

***Historic Resource Study and Administrative History* (NPS 1973).** This study by Anna Coxe Toogood discusses the physical features of the Moses Carver farm, land purchase and patents, farm production, and unimproved land filled with wild fruits, grasses and game. The report recommends that additional consideration might be given to the historic scene, stating, "While the visitor center obviously could not be moved from its dominating position on the farm grounds, it would be advisable to replant some of the crops, orchards, and native growth in the area during the historic period."[15]

***Historic Resources Management Plan* (NPS 1978, revised 1980).** This study noted that the park's vegetation is a historical resource and suggested it be managed as such in order to restore the historic scene to that of the Moses Carver farm of the 1860s and 1870s wherever practical and desirable. This plan advised the park to utilize twentieth-century conservation and agricultural techniques to grow crops, so that the site would closely resemble the Carver farm.

14. *Management Policies 2006* (Washington, D.C.: National Park Service, 2006), 60.

15. Anna Coxe Toogood, *George Washington Carver National Monument, Diamond, Missouri, Historic Resource Study and Administrative History*, July 1973.

***Historic and Vegetation Survey of the Five Prairie Management Units at George Washington Carver National Monument* (NPS 1982).** This study focused on land use patterns over the history of the Moses Carver farm. The Carvers managed a fairly diverse agricultural operation, raising horses, cattle, swine, sheep, goats, and poultry, as well as small-scale cropping and an apple orchard. Moses Carver raised Indian corn, wheat, oats, Irish potatoes, and hay crops. The plan indicated that very little data exists to offer clues as to the real extent and species composition of the historic scene.

***Resources Management Plan* (NPS 1984).** This study included five management objectives. The plan identified the primary resource management objective as defined in the master plan and reaffirmed in the 1978 Statement for Management: "to restore the historic scene to that of the Moses Carver farm of the 1860s and 1870s wherever practical and desirable."[16] The plan has received several revisions, with the most current version approved in 1999.

***Prairie Restoration Action Plan* (NPS 1995).** This plan provided detailed descriptions of current vegetation and planned management actions. The purpose of this action plan was to guide the continuing restoration of a representation of the prairie scene appropriate to the 1860–1870 period of young George Washington Carver. This management approach retains the openness of the prairie areas and emphasizes the natural setting that was a strong part of Carver's early life. The plan updates and incorporates methods in the 1984 Resources Management Plan, and includes an analysis of the current status of the prairie units, a set of qualitative and quantitative goals for restoration, and methods for monitoring to collect baseline data and measure restoration success.

***General Management Plan* (NPS 1997).** The NPS prepared this GMP for George Washington Carver National Monument to serve as a guide for the management and care of the monument for a period of ten to fifteen years. The plan provides a vision for the future of the national monument and a practical framework for decision-making. The plan helps identify the strategies, programs, actions, and support facilities necessary to manage visitation and best protect the monument's resources.

***Springs of Genius: An Integrated Management Plan for George Washington Carver National Monument* (University of Wisconsin-Madison 1999).** This integrated landscape restoration study was underway during the GMP process. The GMP anticipated that *Springs of Genius* would "help guide the planning team in the management and treatment of the site's cultural landscape and its natural features."[17] The 1999 report provides extensive research on the history and evolvement of the park's landscape and features, and provides recommendations for woodland restorations, wetlands management, exotic species control, and prairie restoration. Recommended planting lists were provided, as well as treatments such as planting, seed drills, broadcast methods, and recommended planting procedures. The report suggested the reorganization of management units into natural zones based on existing soils and topography, but these recommendations have not been adopted. Three master plan options were presented for future management of the landscape; none was ever approved by the NPS.

16. *Resources Management Plan* (National Park Service, 1981, revised 1982, revised 1984), 26.

17. John Harrington, Susan Haswell, and Evelyn Howell, with Arnold Alanen, *Springs of Genius: An Integrated Management Plan for George Washington Carver National Monument* (University of Wisconsin-Madison, February 1999).

***Vascular Plant Inventory* (NPS 2004).** A vascular plant inventory was conducted at George Washington Carver National Monument in autumn 2002 in an effort to update the plant taxa originally collected in the late 1950s by Ernest J. Palmer. This study, combined with previous work conducted in the 1990s, resulted in reclassification of 79 percent of Palmer's taxa, and the addition of 178 species not documented by Palmer. The national monument is represented by 645 distinct taxa. Of the 645 taxa, 114 are introduced and represent 35 families. Five taxa of special concern that were found are tracked by the Missouri Department of Conservation. The study involved the verification of the identity of all of Palmer's specimens, field collection of plant specimens, quantitative analysis of habitats at the national monument, and spatial documentation of all plant species recorded.

***Fire Management Plan and Environmental Assessment* (NPS 2004).** This study acknowledged that approximately 90 percent of the park's acreage is burnable and would benefit from periodic prescribed, controlled fire. Land that can sustain fire is comprised of restored prairie, agricultural fields, lawns, wetlands, and mixed oak forests. The plan recommends that use of prescribed fire as a tool for controlling or eradicating invasive exotic species. The plan notes, "The park is in the process of re-evaluating the existing cultural landscape, and through an upcoming GMP revision, may begin planning to change the management of some areas of the park to a more Carver period agrarian setting. In the event that a new cultural agrarian setting plan is adopted, the Fire Management Plan will be revisited to address changes in vegetation types and fuel loads."[18]

***Environmental Assessment for Visitor Center Renovation and Addition* (NPS 2004).** This EA was conducted in order to assess impacts from the proposed renovation of the existing visitor center, as well as the construction of a new addition to the visitor center that would expand and improve visitor and administrative facilities. The proposed visitor center renovation and addition was driven by a need to provide adequate museum collections storage, and to expand and better organize the educational functions, visitor facilities, and staff office space at the park.

***Environmental Assessment Phase I and Pre-Acquisition Environmental Assessment* (NPS 2004–2005).** In 2005, the park acquired the final 30-acre parcel of land to complete ownership of Moses Carver's 240-acre farm. A Phase I EA was completed in 2004, followed by mine tailings clean-up remediation, and a subsequent Pre-Acquisition EA completed in 2005.

***Special History Study, George Washington Carver: For His Time and Ours* (NPS 2005).** The study explores Carver's work with plant disease and mycology, wild plants as food and medicine, herbal medicines, chemurgy, and land use practices.

***Long-Range Interpretive Plan* (NPS 2007).** This plan is based on the national monument's enabling legislation and mission. Using the national monument's mission, purpose and significance statements, primary interpretive themes, and visitor experience goals, this plan articulates the vision for the park's interpretive and educational future and recommends the interpretive media and programs best suited for meeting visitor needs, achieving management goals, and telling the story of George Washington Carver.

***Cultural Landscape Inventory* (NPS 2010).** The CLI describes the character-defining features of the national monument landscape and identifies the resources that contribute to its historic significance. The CLI also discusses the significance of the park as a commemorative

18. *Wildland Fire Management Plan George Washington Carver National Monument* (National Park Service, May 2004).

landscape that is listed in the National Register of Historic Places.

***Natural Resource Condition Assessment* (NPS 2011).** The intention of this study, conducted by MoRAP, was to provide a synthesized assessment of current conditions in the park. The Natural Resources Condition Assessment builds on methods developed for a similar effort for Effigy Mounds National Monument in Harpers Ferry, Iowa. Elements of the methodology include 1) reliance on a framework of essential ecological attributes provided by the Environmental Protection Agency; 2) development of a list of resource types, indicators, and attributes for assessment; and 3) application of assessments by reporting unit, including park wide, major terrestrial landscapes types, and major streams and tributaries.

***Prairie Restoration Management Review and Integrated Cultural/Natural Resource Management Recommendations* (Department of Fisheries and Wildlife Sciences, University of Missouri,2009–2011).** This study provides an assessment of past prairie management practices and guidance for future management. The study evaluated several alternatives, including 1) restoration of historical vegetation (approximately the boyhood scene 1860s–1890s); 2) utilizing the *Springs of Genius* data; 3) management emphasis on the current vegetation described in the Natural Resources Conditions Assessment; and 4) an integrated cultural/natural vegetation management of the landscape. Recommendations included a realignment of management zones throughout the landscape. The report addressed key landscape issues, including native prairie restoration, riparian woodlands and savanna, row crops, old fields, prairie pasture, prairie, orchards, persimmon grove, walnut grove, wetlands, and intensive management of the visitor viewshed along the Carver Trail to restore communities with which George Washington Carver would have been familiar. The report identifies goals and recommended landscape treatments for each management zone. This document was instrumental in bringing much needed information together for the CLR/EA document.

***Vegetation Management Alternatives for George Washington Carver National Monument* (Heartland Natural Resource Monitoring Program 2010).** This study describes vegetation management alternatives for the woodlands and restored prairies, including no action, grass management, native plant management, wildlife habitat management, hay management, grazing management, and crop or orchard management.

***Scope of Collection Statement* (NPS 2011).** This statement includes the legislation that relates to NPS Museum Collections; park history, significance, purpose, theme, and goals; laws, regulations, and conventions related to museum collections; and structures, landmarks, and other park resources listed on national or international registries.

***Vegetation Classification and Mapping of George Washington Carver National Monument* (MoRAP 2013).** This vegetation classification and mapping project was initiated in 2010 and completed in 2013. Protocols and products were produced following NPS Vegetation Mapping Program guidelines. Classification was based on sixteen quantitative field plots, which were placed across the park in a stratified random manner based on qualitative field observation points and viewing of air photos. Mapping was based on photo-interpretation of both leaf-on and leaf-off air photos. Accuracy assessment points obtained during 2012 verified that the map is nearly 100 percent accurate.

***George Washington Carver National Monument: Accessibility Assessment Debriefing Report and Final Report* (NPS 2013).** This study was conducted by the National Center on Accessibility in coordination with the NPS. The Center's assessment process was designed to identify barriers to participation for people with disabilities, make recommendations for barrier removal and improved access, and develop associated work orders and cost estimates

to assist park personnel in long-term planning. At George Washington Carver National Monument, the assessment team from the National Center on Accessibility conducted an accessibility assessment of the physical and programmatic elements managed within the park and throughout the grounds. The team also interviewed park personnel, collecting information to provide a broad range of recommendations for improving access for visitors with disabilities.

***Historic Resource Study* (NPS 2014).** This study emphasizes Carver's childhood years on the Moses Carver farm and his quest for schooling. It fills an important gap in the scholarship by placing George Washington Carver's life experiences within a broader regional and national context. One key research finding concerns Carver's spirituality, which can be traced to a personal conversion on the Moses Carver farm.

***George Washington Carver National Monument Administrative History* (NPS, 2014).** This study presents a chronological history of the park, emphasizing the influences and political processes that brought about the formation of the park unit and the history of the core management directives and their changes over time. It presents a comprehensive history of the site and the park administration.

***Heritage Tourism at George Washington Carver National Monument* (NPS, 2014).** This study presents the results of a qualitative study of heritage tourism behaviors and preferences of five cultural, racial, and ethnic groups in southwest Missouri. The objective was to learn about the preferred attributes of historical and cultural sites across demographic groups, the types of barriers faced in regard to visiting historical and cultural sites such as George Washington Carver National Monument, and how to increase the diversity of visitors to the park. Results of the study showed that through expanded outreach, more direct engagement with community representatives, advertisement designed for and targeted to reach specific populations, enhanced institutional image, and additional services, facilities, events and activities, the goals of increasing diversity in the park can be accomplished.

1.8 Environmental Assessment Impact Topics

1.8.0 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 are 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 [U.S.C.] 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 e-mail correspondence on February 20, 2014, and a SHPO site visit was conducted April 2, 2014. The park provided the SHPO with a 75 percent draft copy of this CLR/EA. The SHPO was also sent a follow up invitational letter on April 8, 2014, for the stakeholder meeting to be held at the park on May 14, 2014. The NPS will provide the SHPO a copy of the 95 percent draft of the CLR/EA for review and comment.

The park sent the U.S. Fish and Wildlife Service (USFWS) a scoping notice on April 8, 2014, to solicit input on threatened and endangered species concerns for the 240 acres of the park included in the CLR/EA treatment alternatives and to invite agency participation in the scoping meeting on May 14, 2014. The NPS will provide the USFWS a copy of the 95 percent draft CLR/EA for review and comment.

George Washington Carver National Monument conducted initial consultation with THPOs for the United Osage Nation, the United Keetoowah Band of Cherokee Indians in Oklahoma, the Caddo Nation, and the Eastern Shawnee Tribe of Oklahoma for the purpose of developing a Programmatic Agreement between the tribes and the park. Letters were issued by the NPS to the THPOs along with a draft of the agreement, inviting them to review the document and attend a follow-up consultation meeting on April 3, 2014. In the same letter, THPOs were invited to the larger stakeholder meetings at the park on May 14, 2014. A follow-up letter with notice of the stakeholder meeting date and time was sent to the THPOs on April 8, 2014, to solicit input and participation in the CLR/EA meeting. The NPS will provide the THPOs a copy of the 95 percent draft CLR/EA for review and comment.

The detailed list of stakeholders and responses from the internal and external scoping process are identified and discussed in Chapter 7: Consultation and Coordination.

1.8.1 Planning/Management Issues and Concerns Management Overview

The management of George Washington Carver National Monument is generally guided by the 1997 GMP, with interpretation guidance provided by the 2007 Long-Range Interpretive Plan (LRIP) and the 2010 CLI. The GMP was developed to supersede the then 30-year-old master plan and establish new management goals based on more recent resource planning documents. The philosophy of the plan centers around the management of the natural and cultural resources and the visitor services program to support the commemoration of Dr. George Washington Carver in a dignified manner and adhere to the legislation that created the park. Natural and cultural resources will serve as symbols of significant events and influences on the character and life of Dr. George Washington Carver.[19] The following "desired futures" management objectives identified in the GMP (1997) include:

- Preserve the agrarian setting;
- Manage cultural and natural resources to memorialize George Washington Carver's life in a dignified and inspirational setting;
- Encourage the public to develop a deep understanding of George Washington Carver's achievements and services to humanity;
- Explain the historical context in which George Washington Carver grew up and his efforts to get an education; and
- Evaluate the human/natural/cultural resources and utilize them to a greater extent.

The LRIP was designed to complement and expound on the interpretive and educational functions outlined in the GMP. The interpretive and educational programs at George Washington Carver National Monument are designed to provide opportunities for people to forge intellectual and emotional connections to the ideas and meanings inherent in the life and accomplishments of George Washington Carver. The plan establishes an effort to connect all visitors with the legacy of Carver so that they can understand the significance of his contributions to

19. *General Management Plan* (1997),15.

mankind and realize their vital role in ensuring the future of the national monument.[20]

The CLI, developed three years after the LRIP, describes current NPS goals and challenges in the efforts for interpretation and management of the national monument:

> With few historic structures and little documentation to work with, the NPS decided early on to focus on the vegetative surroundings that would have been present during Carver's boyhood period given how influential the environment, both natural and agricultural, was to him. This setting also had to be co-sympathetic with any constructed amenities that would be added to the landscape for interpretive or commemorative purposes. This presented a challenge of how to appropriately represent and interpret a complex man of great achievement who preferred a quiet and simple lifestyle and little fanfare. Re-establishing plant communities is a lengthy process of careful study, inventorying, and monitoring over a period of time, allowing re-introduced communities to become self-sustaining. The park service also had the added complexity of ensuring that the setting did not overwhelm the accomplishments and influence of Carver and that the interpretation of and memorials to Carver did not overpower the natural setting.[21]

The CLI defined and confirmed the historic landscape boundary, identified significant viewsheds, and documented contributing features associated with Dr. George Washington Carver.

Over time, the park approach has evolved to include management of more than 120 acres of prairie; woodlands that are not necessarily managed but edge much of the trail; and the developed area that has become increasingly ornamental in its character. Park staff has incorporated prairie restoration and the maintenance of a small garden plot into management of the park. Other aspects of the natural environment are interpreted as having influenced the young George Washington Carver, including the presence of wildflowers, fruit and nut trees, and the Carver Spring. Natural resource management therefore emphasizes maintenance and restoration of native flora and fauna.[22]

Management Issues. The following list summarizes management issues identified as part of the research, inventory, and evaluation of George Washington Carver National Monument's cultural landscape and resources. These issues address those elements and challenges associated with the existing site, buildings, and structures, and operations or maintenance that make it difficult for the park to realize the vision and goals for the property. Detailed descriptions and associated treatments that address the management issues are presented in Chapter 5.

- Sustained adequate management for the prairie restoration.

- Identification of an area of the park to be maintained as an agrarian environment similar to that of the Moses Carver farm in the 1860s and 1870s. This is central to the interpretive goals for the site and an integral part of the proposed alternatives in Chapter 5 of the CLR/EA.

- Management of existing natural systems including Carver Spring and the three streams, Carver, Harkins, and Williams branches, which are part of the cultural landscape of the national monument. The Arkansas Darter (*Etheostoma cragini*), a candidate for federal

20. *George Washington Carver National Monument Long-Range Interpretive Plan* (National Park Service, November 2007), 7–9.
21. *Cultural Landscape Inventory*, 22–23.
22. Gust M. Annis, Michael D. DeBacker, David D. Diamond, Lee F. Elliott, Aaron J. Garringer, Phillip A. Hanberry, Kevin M. James, Ronnie D. Lee, Sherry A. Leis, Michael E. Morey, Dyanna L. Pursell, and Craig C. Young, *George Washington Carver National Monument Natural Resource Condition Assessment,* Natural Resource Report NPS/HTLN/NRR—2011/425. (Fort Collins, Colorado: National Park Service, Natural Resource Stewardship and Science, July 2011), 18–20.

listing as a Threatened and Endangered species, has been found present in park streams.

- Sustained adequate management of Williams Pond. Though the pond is not considered a contributing feature to the historic landscape, it is a valuable resource to be managed and maintained. It is a common feature in all the treatment alternatives developed in the CLR/EA.

- Addition of more trails within the 240-acre landscape of George Washington Carver National Monument. This would allow visitor access to more of the site and expanded interpretive opportunities. Expanded trails are part of the conceptual alternative plans in the treatment section of the CLR/EA.

- Identification of the presence, cover, and dispersion of invasive and problematic species at the park and higher-than-desirable cover of invasive non-native vegetation. Treatment recommendations include specific invasive species to be removed and recommendations for inhibiting the spread of invasive vegetation in the park.

- Integration of interpretation with the cultural landscape. The park wants to tie additional interpretive programming to the cultural landscape and is looking to the CLR/EA for direction.

- Establishment of universal accessibility according to the Architectural Barriers Act Accessibility Standards of 1968 (ABAAS) and the 2004 ADA-ABA Accessibility Guidelines (ADA-ABA). This is a major issue that will be addressed as the preferred alternative is selected and developed.

- Address the condition, treatment, management, and maintenance of the wall surrounding the cemetery and the cemetery burial markers. Specific treatment recommendations are included in the treatment section of the CLR/EA.

- Establishment of a designated parking area for use during special events at the national monument. A location, access and design for overflow parking is included in the alternatives proposed in the treatment section of the CLR/EA.

1.8.2 Impact Topics Evaluated

An important part of the decision-making process associated with development of treatment recommendations is seeking to understand the consequences of making one decision over another. This CLR/EA identifies the anticipated impacts of possible actions on specific resources, park visitors, and neighbors, and park operations. The impacts are organized by topic, including natural resources, cultural resources, aesthetic resources and visitor use and experience, NPS operations and infrastructure, and long-term management and sustainability of resources. Impact topics serve to focus and give boundaries to the environmental analysis and ensure the relevance of impact evaluation.

Specific impact topics were developed to allow comparison of the environmental consequences of each alternative presented in this CLR/EA. These impact topics were identified based on the issues raised during scoping; site conditions; federal laws, regulations, and Executive Orders; NPS *Management Policies 2006* (NPS 2006) and topics specified in NPS *Director's Order 12 Handbook* (NPS 2001); park-specific resource information; and agency and public input during scoping. Each of the impact topics listed in the table at the end of this chapter would be affected by one or more of the alternatives evaluated in this CLR/EA. A brief rationale for the selection of each impact topic is provided and each impact topic is further discussed in detail in Chapter 4: Affected Environment.

A table of impact topics, reasons for retaining impact topic, and relevant laws, regulations, and policies is provided at the end of this chapter.

1.8.3 Impact Topics Dismissed from Further Analysis

The following impact topics or issues were eliminated from consideration because the effects, if any, would be minor to negligible.

Geology. The NPS Organic Act and NPS *Management Policies 2006* direct the NPS to preserve and protect geologic resources and maintain natural geologic and coastal processes. The NPS must also comply with state and local requirements for work in coastal zones.

The entire area of George Washington Carver National Monument is on the western side of the Ozark physiographic province, an uplifted dome of sedimentary rock beds that have been dissected by hundreds of thousands of years of erosion. Included within the Ozark Dome lithographic series are sandstones, limestones, shales, and dolomites.[23] The action alternatives would have little to no impact on site geology because no subsurface excavation is proposed. No important or unusual geologic formations would be affected by the alternatives. As a result, each action alternative would have negligible local or long-term adverse impacts on geological resources. The no action alternative would have no effect on geologic resources. The goals and vision for the George Washington Carver National Monument preclude large-scale development from intruding on the site. They also limit physical changes at the national monument to those that can be carried out without altering geologic processes. The action alternatives proposed in this document are consistent with past NPS actions on the site and would not alter current geologic processes. Therefore, the impact topic of geology was dismissed.

Prime and Unique Farmland. *The Farmland Protection Policy Act (FPPA) (7 Code of Federal Regulations [C.F.R.] sec. 658)* states that "the purpose of the Act is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses." In addition, the FPPJA states that federal programs shall be administered in a manner that, as practicable, would be compatible with state and local government and private programs and policies to protect farmland. The FPPJKA requires identification of proposed action that would affect any land classified as prime or unique farmland before federal agency approval of any activity that would convert farmland. The Natural Resources Conservation Service (NRCS), part of the U.S. Department of Agriculture (USDA), administers the FPPA as it relates to protection of farmland. Responsible federal agencies are required to consider alternative actions and ensure that their programs are compatible with state and local government programs. There is prime/unique farmland in Newton County and at the national monument, but nothing in the list of actions would permanently remove potentially productive land from being productive. Therefore, the impact topic of prime and unique farmland was dismissed for consideration in the impact analysis.

Climate Change. Any emissions associated with the proposed action alternatives would be negligible. These emissions would have an indiscernible effect on climate change. Changes in visitor use following implementation of the action alternatives would not result in a substantial increase in traffic to the park. Because the proposed project would result in indiscernible contributions to climate change, this impact topic was dismissed from further analysis.

Paleontological Resources. NPS *Management Policies 2006* directs the NPS to protect, preserve, and manage paleontological resources. Because George Washington Carver National Monument is not known to contain scientifically important paleontological resources, it is unlikely there would be any effects on paleontological resources. Therefore, paleontological resources were dismissed as an impact topic.

23. *Resource Management Plan*, 1980, 2.

Wilderness. The Wilderness Act and NPS *Management Policies 2006* require that all lands administered by the NPS be evaluated for their suitability for inclusion within the National Wilderness Preservation System. Areas suitable for wilderness designation are those that generally have the qualities of being untrammeled, natural, undeveloped, and offering solitude or a primitive and unconfined type of recreation. The project area is neither within nor even close to existing or proposed wilderness boundaries and therefore, is not subject to Wilderness Act requirements. Because there would be no direct effects on wilderness resources and values, this topic was dismissed from further evaluation.

Natural Soundscape. An important part of the NPS mission is preservation of natural soundscapes associated with national park units as indicated in NPS *Management Policies 2006* and *Director's Order 47: Sound Preservation and Noise Management*. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all natural sounds within the park, together with the physical capacity for transmitting natural sound through air, water, or solid material. Acceptable frequencies, magnitudes, and durations of human-caused sound varies among national park units, as well as potentially throughout each park unit, but are generally greater in developed areas and less in undeveloped areas. George Washington Carver National Monument is in a low use area with negligible vehicular traffic and background noise. None of the action alternatives would introduce additional noise and traffic from visitors and park staff. Because the alternatives would not increase noise levels, natural soundscapes was dismissed as an impact topic.

Air Quality. The 1963 Clean Air Act, as amended (42 USC 7401 et seq.) Section 118; and NPS *Management Policies 2006* require that air quality related values must be taken into consideration as an impact topic due to potential pollution sources related to action alternatives proposed for park sites. The scale of the action alternatives for George Washington Carver National Monument would not have any measureable impact on air quality. Therefore, air quality was dismissed as an impact topic. The closest air monitoring station is located in Carthage, Missouri, 9 miles north of the national monument.

Lightscape. In accordance with NPS *Management Policies 2006,* the NPS strives to preserve natural ambient lightscapes, which are natural resources and values that exist in the absence of human-caused light. The action alternatives would not increase any use of nighttime lighting, specifically at the visitor center and the entrance to the site. Any necessary additions of nightlight for safety purposes would also have a negligible impact on the night sky. Therefore, lightscape was dismissed as an impact topic.

Museum Objects. *NPS-28: Cultural Resource Management Guideline* defines a museum object as "a material thing possessing functional, aesthetic, cultural, symbolic, and/or scientific value, usually movable by nature or design. Museum objects include prehistoric and historic objects, artifacts, works of art, archival materials, and natural history specimens that are part of a museum collection."[24] The proposed action does not include any design for storage and/or display of museum collections or collections accrued through site archeology, and does not otherwise affect museum objects. Therefore, this impact topic was dismissed from further analysis.

24. *NPS-28: Cultural Resource Management Guideline* (National Park Service, June 11, 1998), Appendix A: Glossary.

Environmental Justice. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations,* requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental impacts of their programs and policies on minorities and low-income populations and communities. There are no environmental justice populations in the project area and none of the action alternatives would have an adverse effect on any population in general. Therefore, environmental justice was dismissed as an impact topic.

Indian Trust Resources. Secretarial Order 31.75 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaskan Native tribes. There are no Indian trust resources in George Washington Carver National Monument according to this definition. In addition, any Indian titles to such lands now within the park have been extinguished through cession or sale. The lands comprising George Washington Carver National Monument are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, Indian Trust resources are dismissed as an impact topic in this CLR/EA.

Natural or Depletable Energy Resource Requirements and Conservation Potential. In accordance with NPS Management Policies 2006 and Executive Orders 12873 and 12902, there are requirements in everything the NPS does that will have some small affect in improving our environmental footprint (green buying and sustainable building materials, etc.). However, individual changes at George Washington Carver National Monument are unlikely to have significant impacts to the wider universe of energy use and depletable resources. Therefore this impact topic was dismissed from further analysis.

Summary of Impact Topics

Impact Topic	Reasons for Retaining Impact Topic	Relevant Laws, Regulations, and Policies
Soils	NPS actively seeks to understand and preserve the soil resources of parks, and to prevent, to the extent possible, the erosion, physical removal, or contamination of the soil or its contamination of other resources. There is potential for soil disturbances from the implementation of the alternatives. Therefore, this topic was retained for further analysis.	NPS Organic Act; NPS Management Policies, 2006
Vegetation (including non-native and invasive plant species)	The park manages both grassland and forest. Grasslands cover approximately two-thirds of the park. Forested areas occur primarily along streams, but extend into the uplands. The picnic area and the visitor center/headquarters complexes are highly managed and manicured with a large proportion of non-native trees and shrubs. Also there is a higher than desirable cover of invasive non-native vegetation and problematic species at the park. Vegetation disturbance could occur and the introduction of more invasive non-native species is possible from activities implemented in the alternatives. Therefore, this topic was retained for further analysis.	National Environmental Policy Act (42 USC 4321 *et seq*.); NPS Organic Act; NPS Management Policies, 2006; Resource Management Guidelines (NPS-77); Federal Noxious Weed Control Act; Executive Order (EO) 13112, Invasive Species, 1999
Water Quality	There are three streams that flow through the monument and two spring branches that are completely contained within the park. Carver Branch, Harkins Branch, and Williams Branch are all tributaries of Shoal Creek. Aquatic habitats are an important part of the natural and cultural interpretive programs at the park. Disturbances from the implementation of these alternatives could affect water quality. Therefore, this topic was retained for further analysis.	NPS Organic Act; NPS Management Policies, 206; Clean Water Act, Section 404
Wildlife and Wildlife Habitat	The landscape of George Washington Carver National Monument supports a variety of wildlife. Disturbances from the implementation of the alternatives could affect the wildlife and their habitat. Therefore, this topic was retained for further analysis.	NPS Organic Act; NPS Management Policies, 2006
Rare, Threatened and Endangered Species	Species of concern (flora and fauna) are present at George Washington Carver National Monument. Disturbances due to the implementation of the alternatives could affect species on the site and within the site's regional context. Therefore, this topic was retained for further analysis.	1973 Endangered Species Act, administrated by U.S. Fish and Wildlife Service; U.S. Fish and Wildlife Service's Endangered Species Program; NPS Management Policies, 2006

Impact Topic	Reasons for Retaining Impact Topic	Relevant Laws, Regulations, and Policies
Wetlands	Several areas of the park experience wet conditions throughout much of the year. The south-central, west-central, and east-central portions often have standing water in them during the winter and spring. Some of the water results from runoff, while much of it results from ground water seepage. Implementation of the alternatives could affect wetlands. Therefore, this topic was retained for further analysis.	NPS Organic Act; NPS Management Policies, 2006; Clean Water Act, Section 404; Executive Order 11988, Floodplain Management; Executive Order 11990, Protection of Wetlands; NPS Director's Order No. 77-1, 2002
Floodplains	Three small streams occur in the park, Carver, Harkins, and Williams branches. Carver and Williams branches originate as springs and have historic and natural significance. Carver Branch is a small spring-fed stream that flows across the park primarily from east to west. Implementation of alternatives may affect floodplains. Therefore, this topic was retained for further analysis.	NPS Organic Act; NPS Management Policies, 2006; Clean Water Act, Section 404; Executive Order 11988, Floodplain Management; Executive Order 11990, Protection of Wetlands; NPS Director's Order No. 77-1, 2002
Cultural Landscapes	The future of the cultural landscape of George Washington Carver National Monument is a key issue and concern of the CLR/EA. Changes to the cultural landscape that could result from implementing one or more of the alternatives would be of concern to visitors, the public, the SHPO, interested tribes and THPOs, and NPS managers; therefore, this topic was retained for further analysis.	Sections 106 and 110 of the NHPA; ACHP implementing regulations regarding the "Protection of Historic Properties"(36 CFR 800); DO-28: Cultural Resources Management Guideline; NPS Management Policies, 2006; Secretary of the Interior's Standards for the Treatment of Historic Properties; NEPA; Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes, 1996
Historic Structures	The future of historic structures on the landscape at George Washington Carver National Monument is a key issue and concern of the CLR/EA. Changes to historic structures that could result from implementing one or more of the alternatives would be of concern to visitors, the public, the SHPO, and NPS managers; therefore, this topic was retained for further analysis.	Sections 106 and 110 of the NHPA; ACHP implementing regulations regarding the "Protection of Historic Properties"(36 CFR 800); DO-28: Cultural Resources Management Guideline; NPS Management Policies 2006; Secretary of the Interior's Standards for the Treatment of Historic Properties; NEPA; Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes, 1996

Impact Topic	Reasons for Retaining Impact Topic	Relevant Laws, Regulations, and Policies
Archeological Resources	Ground-disturbing construction activities and vegetation removal associated with the CLR/EA alternatives have the potential to impact archeological resources and therefore, this topic was retained for further analysis.	Sections 106 and 110 of the NHPA; ACHP implementing regulations regarding the "Protection of Historic Properties"(36 CFR 800); DO-28: Cultural Resources Management Guideline; NPS Management Policies, 2006; Secretary of the Interior's Standards for the Treatment of Historic Properties; NEPA; Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes, 1996
Visual Resources	The alternatives could affect the views to and from George Washington Carver National Monument and views from one part of the site to another. Therefore, this topic was retained for further analysis.	NPS Management Policies, 2006
Visitor Use and Experience	The alternatives could affect overall visitor understanding of the entire landscape and the story of George Washington Carver, including interpretive and educational opportunities. Therefore, this topic was retained for further analysis.	NPS Organic Act; NPS Management Policies, 2006; General Management Plan, 1997; and the Long-Range Interpretive Plan, 2007
Park Operations	Park operations could be affected by the alternatives, including additional management /maintenance needs; facility and interpretation needs. Therefore, this topic was retained for further analysis.	NPS Management Policies, 2006

Chapter 2: Site History

Introduction

This chapter consists of a history of George Washington Carver National Monument with accompanying chronology, an evaluation of the significance of the property, and a series of period plans illustrating the character and features present on the site at key points throughout its history. This chapter provides background to the comparative analysis of historic and existing landscape conditions and the assessment of the site's historic integrity provided in the next chapter. Together, these sections support an understanding of what resources are character-defining for the historic landscape, support its significance, and relate to the important themes and contexts that connect the national monument to local, state, and national trends in history and design.

Initial Settlement of the Moses Carver Farm

The first settlers of European descent arrived in Newton County, Missouri, in 1830. Sometime later in that decade, Moses Carver, his wife Susan, and his brothers George and Richard and their families arrived from Sangamon County, Illinois.[25] The Carvers settled approximately 2-1/2 miles southwest of the present-day village of Diamond in Newton County.[26]

The region in southwest Missouri in which the Carvers settled is located on the western edge of the Ozarks in the Springfield Plain. Prior to the arrival of Euro-American settlers, the area was home to the Osage tribe.[27]

Upon arriving in Newton County, the Carver family is likely to have constructed a small log cabin. The homestead was included on an 1841 plat map prepared by the U.S. General Land Office. The map noted three cabins and two large fields, approximately 20 to 30 acres in size, on the property at that date.[28]

The Carver family acquired title to the land under the right of preemption. This policy, which President James Madison extended to what was then the Missouri territory in 1814, allowed those living in the region the opportunity to purchase up to 160 acres of public land at a price of $2 per acre.[29] This allowed settlers to occupy and farm the land prior to it being surveyed by the U.S. General Land Office. While Moses Carver settled the land in the 1830s, it was not until 1841 that the land was surveyed. As a result, it was not until 1843 that portions of the land on which Carver had settled were made available for purchase. On

25. Jason H. Gart, *He Shall Direct Thy Paths: The Early Life of George W. Carver, Historic Resource Study* (Washington, D.C.: National Park Service, Department of the Interior, 2014), 9–11.
26. John Harrington, Susan Haswell, and Evelyn Howell, with Arnold Alanen, *Springs of Genius: An Integrated Management Plan for George Washington Carver National Monument, Diamond, Missouri* (Madison, Wisconsin: Department of Landscape Architecture, University of Wisconsin, 1999), 57.
27. Ibid., 10.
28. Harrington et al., 58.
29. Gart, *He Shall Direct Thy Paths*, 14–15, citing R. Douglas Hurt, *Agriculture and Slavery in Missouri's Little Dixie* (Columbia: University of Missouri Press, 1992), 43–44.

June, 1 1845, ownership of 160 acres of land was finally transferred from the federal government to Moses Carver.[30]

Moses Carver further expanded his land holdings in 1844, when he obtained 40 acres from his brother Richard for $50.[31] In 1853, Moses Carver received a patent for an additional 40 acres of land from the U.S. General Land Office. Following these acquisitions, Moses Carver owned 240 acres of land, comprising portions of two sections.[32]

Moses Carver and his family began farming their holdings shortly after they first settled in southwest Missouri in the 1830s. The largest crop cultivated on the farm throughout the 1840s and 1850s was corn. In addition to farming, Carver owned cattle, horses, mules, sheep, pigs, and oxen. A walnut grove and apple orchard were also present on the Carver property.[33] The walnut grove included more than 500 trees by the 1880s.[34]

Beginning in the 1840s, as Moses Carver gained title to the land he settled, improvements were made to the farm. While the extent of the construction undertaken by the Carver family at this time is unknown, it is likely additional structures such as outhouses, stock sheds and pens, smokehouses, and a barn were constructed as the farming operations grew.[35]

The Carver Family Cemetery. The Carvers established a small family cemetery on their property. Although the date of origin is not presently known, one of the graves marked in the cemetery is that of Charity Dunn, who reportedly died in 1835. It is not clear, however, whether the Carver family had arrived in Newton County by this time, or if Dunn's death and burial at the cemetery predated their arrival.[36] The small graveyard is believed to have been originally surrounded by a dry stone wall constructed by Moses Carver.[37] In total, twenty-one known gravesites including those of Moses, Susan, Richard, and George Carver were established in the cemetery in the years 1835–1919.

Slavery at the Moses Carver Farm

Slavery was common in Missouri from the time of French and Spanish settlement until the U.S. Civil War. By 1860, slaves comprised 10 percent of the state's population overall, and up to 25 percent in counties along the Mississippi and Missouri rivers where larger plantations existed. In contrast, in southwestern Missouri, slaveholdings were typically quite small, with many only having possession of one slave. If a property only held one slave, that person was commonly a woman or girl who could work in both the house and the farm field. Although individual slaves in such a situation may have been somewhat socially isolated compared to slaves on large plantations, there were many opportunities for slaves from adjacent farms to interact at work events, church services, and social gatherings.[38] It was typical for slaves to work alongside their owners in farming the land, while also serving as household servants.[39] It was not uncommon for orphaned slave children to be raised in the farm household. Nor was it

30. Ibid., 16 citing Charles W. Porter III , "Report on an Investigation of George Washington Carver's Birthplace at the Old 'Diamond Grove' Plantation Near Diamond, Newton County, Missouri," February 24-March 5, 1943, 14, Boxes 187–188, George Washington Carver National Monument, RG 79, Records of the National Park Service-Region II Omaha, NARA-Central Plains (Kansas City).
31. Ibid.
32. Ibid.
33. Ibid., 16–18.
34. Ibid., 18, citing Porter, 9.
35. Ibid., 19.
36. Ibid., 8.
37. Robert P. Fuller, "Report on Project #4: Moses Carver and His Family" (U.S. Department of the Interior, National Park Service, George Washington Carver National Monument Park, October 18, 1955), 2.
38. Diane Krahe and Theodore Catton, *George Washington Carver National Monument Administrative History* (National Park Service, 2014), 21–23.
39. Gart, *Historic Resource Study* (draft), 27, citing Diane Mutti Burke, *On Slavery's Border: Missouri Small-Slaveholding Households, 1815–1865* (Athens: The University of Georgia Press, 2010), 131.

uncommon in the years immediately after the Civil War for emancipated slaves to remain at the same farm while they considered their new opportunities.[40]

In October 1855, with operations expanding and the farm becoming more prosperous, Moses and Susan Carver purchased a 13-year-old enslaved African American girl named Mary for $700. Under the ownership of the Carvers, Mary was likely responsible for cooking, cleaning, washing clothes, and sewing, as well as farm-related tasks such as feeding livestock and maintaining gardens.[41]

In October 1859, Mary gave birth to a son, James.[42] The identity of James's father is unknown. Mary gave birth to a second son, George, circa 1865.[43] While the identity of George Washington Carver's father is not known, some including George believe his father was a slave owned by James Grant, a farmer from nearby Buffalo Township.[44] In addition to George and James, there is speculation that Mary also gave birth to two or three daughters while a slave of the Carvers.[45]

Mary and her children resided in a slave cabin that was likely near the home of Moses and Susan Carver. In the 1940s, Moses Carver's nephew, Tom Williams, described the cabin as follows:

> [F]aced east with a single window in the west and a chimney on the north. It was built of hewn oak logs perhaps six inches through, notched at the ends and fitted together, the cracks then being filled with clay or chinking. The door was a plank door with wooden hinges . . . . The roof was of clapboards. The chimney was built of rock up to the mantelpiece and of sticks and clay from there. The sticks were about two and one half inches in diameter.[46]

In 1865, prior to the conclusion of the Civil War, Mary and George were abducted from the Carver farm. Moses Carver sent John Bentley to recover Mary and George in return for 40 acres of land and a racehorse. While Bentley was able to locate George in Arkansas, he was unable to find Mary. George was suffering from whooping cough when he was discovered by Bentley. While various sources note that Mary was sold in Arkansas, others report that she died of pneumonia. Since Bentley only found George, he declined the land offered to him and only accepted the racehorse as payment.[47]

Emancipation

Although the Emancipation Proclamation, which was issued by President Abraham Lincoln on January 1, 1863, freed enslaved persons in Confederate-held lands, it did not free those slaves in the states of Delaware, Kentucky, Maryland, Missouri, Tennessee, or the portions of Virginia that were to become West Virginia. Slaves in Missouri were not emancipated until the State constitutional convention on January 18, 1865. Mary and James thus remained slaves after the Emancipation Proclamation was issued, while George was born just as the legal practice of slavery was ending. After the constitutional convention some slaves were driven off their former owners' lands, while others were not told they were now free. Other slaves remained as paid laborers.[48]

40. Krahe and Catton, 23, citing Burke, 148, 300.
41. Gart, *Historic Resource Study* (draft), 37, citing Burke, 135–138.
42. Ibid., 32. James's birthdate is taken from the information on his grave marker erected at the time of his death in 1873.
43. The birth of George Washington Carver was not recorded and as a result the exact year of his birth is not known. For this study, a birth year of 1865 has been assumed based on the findings of the *Historic Resource* Study. See Gart, *Historic Resource Study* (draft).
44. Gart, *Historic Resource Study* (draft), 35.
45. Ibid., 33.
46. Ibid., 38, citing Paul L. Beaubien and Merrill J. Mattes, "George Washington Carver National Monument: The Archeological Search for George Washington Carver's Birthplace," Negro History Bulletin 18, no. 2 (November 1954), 35.
47. Ibid., 46.
48. Ibid., 48, citing Burke, 301–303.

After emancipation, James and George, who were both young children and without parents, remained on the farm with Moses and Susan Carver.[49]

The Moses Carver Farm after the Civil War

George Washington Carver lived on the Moses Carver farm from his birth until circa 1876. After emancipation, James and George initially remained in the former slave quarters, where they had resided with their mother. By 1870, census documents suggest that they shared this living space with Nickles Holt, Sr., an 88-year-old farmer from Tennessee, and his son or grandson, 14-year-old Nickles Holt, Jr.[50]

The Carver farm continued to be prosperous following the Civil War and through the 1870s, with corn, potatoes, oats, and rye being cultivated. In addition, a number of livestock were present on the farm. James and George worked as farm laborers during their time living on the farm. George, whose health was poor, participated in less physically demanding tasks, such as carrying water or preparing logs.[51]

In addition to his farm-related tasks, George Washington Carver's interest in nature was developed during his time on the farm as he explored the Carver property collecting various flowers and insects. During his early years on the farm, he also learned to read. Looking back at his childhood on the farm Dr. George Washington Carver noted, "Day after day I spent in the woods alone in order to collect my floral beauties and put them in my little garden I had hidden in brush not far from the house."[52]

In the 1870s, George and James briefly attended the Locust Grove School, which met at the Locust Grove Church, approximately one mile from the Moses Carver farm (Figure 10). Their time at the school was short, as the brothers learned they could not continue their studies due to their race.[53]

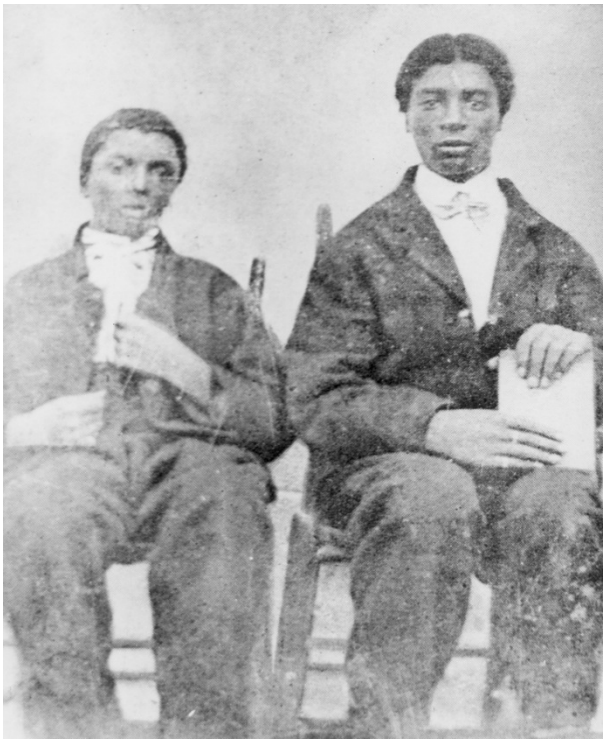


FIGURE 10. George and James Carver, circa 1870s. Source: George Washington Carver National Monument Photo Collection.

George Washington Carver Leaves the Moses Carver Farm

In 1876, George Washington Carver, approximately 11 years old, was permitted by Moses and Susan Carver to attend the Neosho Colored School in nearby Neosho, Missouri (Figure 11). The Neosho Colored School was a school for African Americans located on the outskirts of Neosho near the small town of

49. Ibid., 48.
50. Ibid., 53, citing "Moses Carver," 1870 U.S. Census, Marion, Newton, Missouri, 24, dwelling 169, Record Group 29, Records of the Bureau of the Census, NARA-DC.
51. Ibid., 56–57.
52. Ibid., 61, citing "A Sketch of His Early Life Written by George W. Carver in 1897 or Thereabouts for Mrs. W. A. Liston and Miss Etta M. Budd," Reel I, Frame 0007, Microfilm 17,416, The George Washington Carver Papers in the Tuskegee Institute Archives, Manuscript Division, Library of Congress.
53. Ibid., 78, citing Gary R. Kremer, *George Washington Carver: A Biography* (Santa Barbara: Greenwood, 2011), 8–9.

Neosho City.[54] The school occupied a house at 639 Young Street, in a neighborhood with a concentration of African American residents. Founded in 1872, the Neosho Colored School ceased operating in 1891, when students moved to the newly constructed Lincoln School.[55]



FIGURE 11. George Washington Carver, circa 1876. Source: George Washington Carver National Monument Photo Collection.

Shortly before George left the farm to enroll in the school, his brother James, 16 at the time, left for Fayetteville, Arkansas, before returning to Diamond and attending the school in Neosho with George. James continued to stay with the Carver family during this time, riding his horse to school each day.[56] It is not known how long James remained at the school. Eventually, James worked as a plasterer or laborer for a railroad company in Seneca, Missouri. He died in 1883 from smallpox at the age of 23.[57]

Not long after enrolling at the school in Neosho, George began residing in the home of Andrew and Mariah Watkins, a middle-aged African American couple who owned a home next door to the school. Carver initially stayed with them during the week, but eventually came to remain with them on weekends as well. George Washington Carver's enrollment in the Neosho Colored School marked the end of his time on the Moses Carver farm.[58] George reportedly returned on several occasions to visit the Carvers. While it is known that George Washington Carver visited the farm in the fall of 1884, there is evidence that he also returned during the summers of 1879, 1880, or 1881, prior to the death of Susan Carver in January 1882.[59]

Refer to Figure 12, period plan of the Moses Carver farm, circa 1865–1876.

George Washington Carver in Later Years

In 1878, George Washington Carver left Neosho for Fort Scott, Kansas. Carver moved between Kansas and Missouri over the next few years before settling in Minneapolis, Kansas, where he graduated high school.[60]

Carver attended Simpson College and Iowa Agricultural College and Model farm (now Iowa State University) between 1890 and 1896. During this time, Carver received a bachelor of agriculture degree, and a master of science degree in agriculture. Following completion of his master's

54. Ibid., 82. Neosho City was also referred to as Martling, New Neosho, North Neosho, and Newtown. The town was incorporated into Neosho in 1881.
55. Susan Richards Johnson & Associates, *Historic Structure Report: 1872 Neosho Colored School* (National Park Service, George Washington Carver National Monument, July 17, 2012), 15–17, 38.
56. Gart, *Historic Resource Study* (draft), 81–82.
57. Ibid., 101.
58. Ibid., 81–86.
59. Harrington et al., 6, citing Linda O. McMurry, *George Washington Carver: Scientist and Symbol* (Oxford, U.K.: Oxford University Press, 1981), 9, 50.
60. Gart, *Historic Resource Study* (draft), 88–104.

degree, Carver joined the faculty of the Tuskegee Normal and Industrial Institute at the request of the school's president, Booker T. Washington. Carver became head of the newly formed agricultural department. Washington, like Carver, was born into slavery. Washington graduated from the Hampton Normal and Agricultural Institute in 1875. He was named the head of the Tuskegee Normal and Industrial Institute in 1880, shortly after its establishment by the Alabama State Legislature. [61]

Dr. Carver remained at the Tuskegee Normal and Industrial Institute until his death in 1943. In addition to his role as teacher and head of the agriculture department, Dr. Carver was a vocal proponent of sustainable agricultural practices. Dr. Carver recognized that farmers' overdependence on cotton crops was causing soil erosion and depletion of fertility. As a result, Dr. Carver promoted the use of organic mulches and compost as ways to restore topsoil. Dr. Carver taught methods of crop rotation to practicing farmers, encouraging them to alternate cotton crops with soil-enriching crops such as sweet potatoes, pecans, peanuts, and soybeans. In addition, Dr. Carver educated farmers and the general public about soil and forest conservation, organic farming, and the use of nontoxic products.[62]

Dr. Carver designed a mobile classroom to assist him in his teaching away from Tuskegee.[63] He also performed research and experiments on new uses for peanuts, soybeans, sweet potatoes, and an assortment of other crops. Dr. Carver also developed uses for agricultural crops in industrial applications. During World War I, Dr. Carver produced 500 different shades of dye from soybeans as a way to replace textile dyes formerly imported from Europe. He received three different patents for these innovations.

George Washington Carver died on January 5, 1943. Prior to his death, Dr. Carver provided money to Tuskegee Institute to establish the George Washington Carver Foundation. The goal of the foundation was to continue to fund agricultural research.

61. Ibid., 111.
62. G. Annis, M. DeBacker, D. Diamond, L. Elliott, A. Garringer, P. Hanberry, K. James, R. Lee, S. Leis, M. Morey, D. Pursell, and C. Young, *George Washington Carver National Monument Natural Resource Condition Assessment. Natural Resource Report NPS/HTLN/NRR* (2011/425), 16–17.
63. Gart, *Historic Resource Study* (draft), 143.

Road

Walnut fence row

Carver Branch

Pasture

Crop

Williams farm house*
(location based on
historical base map)

Williams Spring*
(location based on
historical base map)

Moses Carver House*

Crop

Rock wall

Apple orchard*

Wire perimeter fence

Carver Spring

Crop

Williams Spring
(location based on
springhouse foundation)

Hanging tree

Pasture

Crop

Crop

Persimmon
grove

Williams Branch

Carver Branch

Carver Cemetery,
surrounded by
rock wall

Fence row

Robinson Branch

Gilmore farm house
(not present until 1874?)

Crop

Dry Branch

This drawing was prepared to illustrate the Cultural Landscape Report/Environmental Assessment for George Washington Carver National Monument in 2015. This drawing is provided to illustrate the evolution of historic site conditions, and is not intended to serve as a design or construction document.

0' 360' 720'

SCALE 1" = 360'

Feb 09, 2015 - 3:01pm G:\PROJECTS\George WC CLR-EA\Planning\AutoCAD\Active\GWCA_Base_20140114.dwg

Environmental Assessment and Cultural Landscape Report

for

George Washington Carver National Monument

Prepared by JMA, a CCRG company

Drawing No. GWCA 397 127384

PMIS No. _____

Legend

- 2014 GWCA Boundary
- 10-foot contour
- 1-foot contour
- Stream
- Spring
- Road
- Building or structure
- Rock wall
- Fence
- Woodland
- Fence row/orchard

Sources:

Historical base map (NOTE: many features on this map are conjectural; conjectural features are denoted on this illustration with an asterisk)

Contours created from 7.5 minute digital elevation data, USGS, 1998, Newton County, MO (published Rolla, MO).

Outstanding questions:

- Need clarification or confirmation of the location of Williams farm

DRAFT

Figure 12.

Period Plan c.1865–1876

The Moses Carver Farm in the Late Nineteenth and Early Twentieth Centuries

On December 4, 1880, a tornado destroyed the Carvers' home, as well as the cabin where George Washington Carver was born.[64] In 1881 a new house was constructed at the farm. The two-story wood-frame house had a front porch, while the interior was complete with a living room and kitchen.[65]

Susan Carver died in January 1882. Shortly after Susan's death, Sarah Jane Williams, the daughter of Moses Carver's brother George, and her husband William Moore Williams acquired a portion of the land owned by Moses Carver. The Williams lived in a home located near a large spring on the Carver farm.[66]

In 1900 with his health failing, Moses Carver left the farm he had established near Diamond, Missouri, and moved to Galena, Kansas, to live with his nephew John Thomas Carver, the son of Moses Carver's brother Richard.[67] In 1901, Moses deeded his farm to two of his nephews and one niece.[68]

Moses Carver died in 1910 in Kansas. His body was returned to his farm in Missouri, where he was buried in the Carver family cemetery.[69]

In 1911, Moses Carver's heirs sold the 240-acre property to Samuel Warden. Warden owned the farm for only two years before C. M. Shartel purchased the property in 1913.[70]

Several changes were made to the property by Shartel, who was a real estate broker. In 1916, the house constructed in 1881 was moved and remodeled. That same year, the wall around the cemetery, believed to have been constructed by Moses Carver, was removed. Throughout the period during which the land was owned by Shartel, various tenants and employees lived on the property. Shartel also ran a thoroughbred cattle business on the land, resulting in a series of changes to the landscape.[71]

Between 1930 and 1939, an earthen dam was constructed on the property, creating Williams Pond.[72]

Establishment of the George Washington Carver National Monument

In the summer of 1941, the St. Louis chapter of the National Association for the Advancement of Colored People (NAACP) developed the concept of establishing a new national park on the Carver farm site to honor Dr. George Washington Carver and his achievements. Although several members of Congress supported the idea, NPS Director Newton Drury noted that memorial sites honoring living individuals had not been established by the NPS.[73] At the same time, the NAACP chapter did persuade the Missouri Highway Commission to place road signs directing visitors to the Carver farm, which were erected in early April 1942 near Diamond, Missouri, along U.S. Highway 71.[74]

64. Cultural Landscape Inventory, 25.
65. Orville W. Carroll, *Historic Structures Report, Architectural Data Section, Part II, Moses Carver Late Period Dwelling, Building No. 5* (Diamond, Missouri: George Washington Carver National Monument, March 1966), 8, copy in George Washington Carver National Monument Library.
66. Harrington et al., 8.
67. Ibid.
68. Cultural Landscape Inventory, 26.
69. Fuller, 7–9.
70. Cultural Landscape Inventory, 26.
71. Harrington et al., 8.
72. Cultural Landscape Inventory, 26.
73. Krahe and Catton, 29, citing John J. Dempsey, Under Secretary, U.S. Department of the Interior, to John J. Cochran, U.S. House of Representatives, September 19, 1941; Newton B. Drury, Director, National Park Service, to Bennett Champ Clark, U.S. Senate, September 22, 1941; Drury to Walter C. Ploeser, U.S. House of Representatives, November 28, 1941, File L1417, RCF, GWCA.
74. Ibid., 30.

With the road signs in place, tourists began to arrive at the farm. The property owner, Stratton Shartel (C. M. Shartel's son), wrote to Sidney Redmond, president of the St. Louis chapter of the NAACP, to indicate that he was willing to consider selling 30 acres of land to establish a park at the site. Shartel wanted to retain the rest of the property to continue farming.[75]

At the same time, Dr. Richard Pilant, a social science professor at Washington University in St. Louis, and a distant cousin of Moses and Susan Carver, began to lobby for establishment of a national monument at the birthplace of Dr. George Washington Carver. Pilant wrote several hundred letters to U.S. Representatives and Senators, as well as to Secretary of the Interior Harold Ickes. In addition, Pilant sought well-known individuals who could lend their name to the movement to establish the monument. This group, known as the "George Washington Carver Memorial Associates," was never incorporated but served as a cooperating agency working with the park for several years.[76] Pilant said that the idea for a federal memorial at the site had originated during a 1938 reunion held at the Moses Carver farm. With the onset of World War II, Pilant emphasized the value of the memorial in promoting national unity and interracial harmony, as well as countering Nazi propaganda.[77]

Dr. Pilant contacted U.S. Representative Dewey Short in March 1942 to formally request legislation establishing a federal memorial.[78] At the same time, Shartel contacted Short to indicate that he was willing to sell a 25 to 30 acre parcel containing the site of the birth cabin and other structures for $15,000.[79] The first congressional legislation relating to the establishment of the George Washington Carver National Monument at the Moses Carver farm was introduced by Short to the U.S. House of Representatives on July 15, 1942. Parallel legislation was introduced to the U.S. Senate by Missouri Senator Harry S Truman on October 13, 1942. No immediate action was taken on either bill before the 77th Congress adjourned in December 1942.[80]

Dr. George Washington Carver died on January 5, 1943. The next day in the 78th Congress, the death of Dr. Carver was announced by Representative Samuel Hobbs of Alabama, and Representative Short reintroduced his national monument bill, now known as H.R. 647. Senator Truman reintroduced the bill in the Senate as S. 37. The final bill was approved and signed into law by President Roosevelt on July 14, 1943.

Acquisition of Land and Early Park Planning

Based on the previous correspondence with Shartel that offered to sell a portion of the farm to the government for a price between $15,000 to $20,000, the final bill authorizing the establishment of the George Washington Carver National Monument allocated $30,000 for the purchase of land and initial development of the park. This appropriation appeared adequate, as some local officials insisted that $40 per acre was a typical price for undeveloped farmland in Newton County.[81] Also, county records indicated that (for tax purposes), the entire Shartel property, inclusive of buildings, was assessed at $9,000.[82]

A survey of the future park was performed by the National Park Service in March 1943. A report was prepared that described the condition of the site under the ownership of the Shartel family, and also discussed the proposed development of the park. Recommendations for development included purchasing 210 acres of the 240-acre farm,

75. Krahe and Catton, 30–31, citing Stratton Shartel to Mr. S. R. Redmond, President, National Association for the Advancement of Colored People, April 6, 1942, No. 2580, GWCA Collection of George Washington Carver Papers, GWCA Archives.
76. Toogood, 56–57.
77. Krahe and Catton, 32, 35.
78. Ibid., 37, citing Richard Pilant to Dewey Short, March 18, 1942, File 372, Dewey Short Papers, SHS-MO.
79. Ibid., citing Stratton Shartel to Dewey Short, Member of Congress, April 6, 1942, File 373, Dewey Short Papers, SHS-MO.
80. Ibid., 38–39.
81. Ibid., 48.
82. Ibid., 51.

marking the site of the birthplace cabin if its location could accurately be determined, and constructing a museum building to properly orient visitors to the site. An area at the edge of the grove of trees surrounding the then-present farm buildings was suggested as a good location for the museum, as it was near the county highway and required little removal of existing trees. Preservation of the Carver family cemetery and construction of an interpretive trail were also recommended. The development cost, not including land acquisition, was estimated at $77,800.[83]

After the final passage of federal legislation in July 1943, Conrad Wirth, then chief of land planning for the National Park Service, began negotiations with Stratton Shartel. The initial appraisal of the property by the federal government valued the land at $15,000 for 210 acres. By the end of 1943, Shartel was asking for $35,000 for the 210 acres, and negotiations with the Park Service stalled.[84] A new appraisal was conducted after the war, in 1946, which stated a value of $30,000 for the 210 acres in question. By that time, however, Shartel had increased his demand to $73,000.[85] In May 1947, Shartel sold a 100-foot-wide easement for a 154-kilovolt electrical transmission line to the Empire District Electric Company. (Also at some time in the late 1940s, a 7,200-volt electrical transmission line was erected across the eastern edge of the property to the New-Mac Electric Cooperative, to serve several local farms.)[86]

Early in 1948, the Department of Interior contacted the Department of Justice to begin condemnation proceedings on the property. Meanwhile, on May 7, 1948, Shartel sold the farm to a local physician and his wife, Dawson W. and Nell Derfelt. Derfelt knew the significance of the site but later said that he was unaware the NPS still intended to purchase the property.[87]

The petition to condemn the parcel was filed with the U.S. District Court in Kansas City on June 12, 1948. Following a jury trial in May 1949, on July 23, 1949, the court judged the various right-of-ways, mineral rights, and inholdings claimed by utility companies and former owners at a total of $78,895.[88] As a result, Secretary of the Interior Oscar Chapman submitted a bill to Congress seeking to increase the appropriation to $80,000 from $30,000 first appropriated in 1943. In order to provide some funds for site development, the final version of the legislation signed by President Truman on September 9, 1950, raised the total to $150,000.[89] On June 21, 1951, the District Court of the U.S. for the Western District of Missouri, Southwest District decreed the title for 210 acres of land to the United States Government for the establishment of the George Washington Carver National Monument.[90]

While the condemnation and acquisition process was being considered in the federal court and Congress, Sidney J. Philips became involved in the protection of the site. Phillips, who was influential in the establishment of a memorial at the birthplace of Booker T. Washington located on the site of a former plantation in Franklin County, Virginia, provided support to the creation of a national monument at the birthplace of George Washington Carver.[91] In July 1949, Philips and the trustees of the Booker T. Washington Birthplace Memorial, Inc., formed a new organization called the George Washington Carver National Monument Foundation. In November 1949, the foundation signed a one-year lease with the Derfelts for the farm, renewed in November 1950 for a second year. Even after federal acquisition of

83. Howard Baker, Regional Chief of Planning, Region Two. Planning Report Covering Boundary and Development Recommendations for (Proposed) George Washington Carver National Monument. National Park Service, Region Two. 1943.
84. Krahe and Catton, 62.
85. Ibid., 63.
86. Ibid., 66.
87. Toogood, 58; Krahe and Catton, 65.
88. Krahe and Catton, 69.
89. Ibid.
90. Cultural Landscape Inventory, 26.
91. Purchased by S. J. Phillips and originally under private control, the Booker T. Washington birthplace was designated a National Monument in 1956. The memorial consists of a reconstruction of the slave cabin present on the site at the time of Washington's birth.

the site in June 1951, the foundation continued as caretaker of the farm. The National Park Service granted the foundation a special use permit from July 1, 1951, to June 30, 1952, to continue to care for the site and interpret it to visitors (Figure 13 and Figure 14). Even once Park Service personnel were on site from 1952, the foundation continued to farm the site until February 1954.[92]



FIGURE 13. Sign marking the Carver birthplace site, 1952. Source: George Washington Carver National Monument Photo Collection, image 605.



FIGURE 14. Sign marking the Carver birthplace site, 1952. Source: George Washington Carver National Monument Photo Collection, image 605A.

During this time, B. B. Gaillard, a representative of the foundation and a former student of George Washington Carver, was named site custodian. In March 1950, Gaillard took up residency in the large farm house constructed by the Shartels (Figure 15). The foundation's lease was extended another year through 1953. Gaillard resigned as caretaker in July 1952, at which time Robert Fuller, a history teacher from Joplin, was named temporary caretaker.[93]



FIGURE 15. The stone farmhouse constructed by the Shartel family. Source: George Washington Carver National Monument Photo Collection.

It was anticipated that funds to operate the monument would not be available until July 1952. As a result, the NPS began and completed advance planning for the farm. During this time it was determined that all but one building on the property had been constructed by the Shartels, and therefore most of the structures did not date to the period of the Carver family's ownership of the site.

In 1952, a cast concrete bust of George Washington Carver was sculpted by Audrey Corwin and presented to the park (Figure 16).[94]

92. Krahe and Catton, 72–74.
93. Toogood, 59. Fuller was later named park historian and became the first African American professional employee of the Park Service.
94. Cultural Landscape Inventory, 27.



FIGURE 16. The cast concrete bust presented to the park in 1952 at the dedication of the site in 1953. Source: George Washington Carver National Monument Photo Collection.

On September 25, 1952, the first superintendent of the park, Arthur Jacobson, the park historian, Robert Fuller, and Jacobson's wife Valjher Jacobson, who served as clerk, began work at the site. The Jacobsons resided in the large farmhouse on site that had previously been occupied by the site custodians, and the Fullers occupied the former tenant house on the north side of Carver Branch.[95] Through 1952 and 1953, primary efforts consisted of demolishing many of the dozen agricultural outbuildings on the site.[96]

In the spring of 1953, Paul Beaubien, an archeologist with the National Park Service, made a series of archeological digs at a site identified by local residents to determine the location of the birthplace residence of George Washington Carver. Evidence discovered by Beaubien confirmed the likely location of the cabin, although questions regarding the actual location of the cabin remain.[97] (See further discussion of archeological studies, below.)

Dedication of the George Washington Carver National Monument took place on July 14, 1953. Approximately 1,000 to 2,000 people were in attendance, including Secretary of the Interior Douglas McKay (Figure 17 and Figure 18). Richard Pilant, an early proponent of the park, presented the NPS with the pen President Franklin D. Roosevelt used to sign the bill establishing the national monument in 1943.[98]



FIGURE 17. Dedication of the George Washington Carver National Monument, 1953. Source: George Washington Carver National Monument Photo Collection.

95. Krahe and Catton, 85–86.
96. Ibid., 87. An October 1951 inventory identified three residences and twelve outbuildings, including barn, granary, cow shed, loafing shed, machine shed, another small shed, chicken coop, pig sty, feed storage and brooder house, garage, another storage building, and a combination spring and milk house. A wood footbridge crossed the stream below the spring.
97. Toogood, 63.
98. Ibid., 61–62.



FIGURE 18. The dedication of the George Washington Carver National Monument, 1953. Note the Shartel farmhouse in the background. Source: George Washington Carver National Monument Photo Collection.

Beginning in 1954, and continuing into 1955, the wall around the Carver family cemetery was reconstructed and gravestones were repaired. The reconstruction was based on archeological research conducted by the NPS, and the stone material for the wall was obtained from the park property.[99]

Other work accomplished by the NPS in the first few years following dedication of the national monument included rehabilitation of the stream bank to mitigate erosion, widening and surfacing of the entrance road, construction of an entrance sign, installation of four picnic tables, construction of pit toilets for public use, and replacement of the fence around the superintendent's house.[100] Also in the early 1950s, a trail was developed, likely following pre-existing footpaths on the farm for much of its length. This route later became part of the Carver Trail.[101] Stabilization work to preserve the Moses Carver house was finally completed in 1958.[102]

Refer to Figure 19, period plan, 1943–1953.

99. Cultural Landscape Inventory, 27; Krahe and Catton, 218.
100. Krahe and Catton, 88.
101. Ibid., 143. See also NPS Drawing No. 397-3000, "Existing Conditions - Development Area" (May 10, 1956).
102. Ibid., 219.

Environmental Assessment and Cultural Landscape Report

for

George Washington Carver National Monument

Prepared by JMA, a CCRG company

Drawing No. GWCA 397 127384

PMIS No. _____

Legend

- 2014 GWCA Boundary
- 10-foot contour
- 1-foot contour
- Stream
- Spring
- Formal road
- Unpaved road
- Trail/footpath
- Building or structure
- Rock wall
- Fence
- Woodland
- Utility line

Sources:

1953 Aerial photograph.

"Existing Conditions, Development Area," Drawing No. 397-3000, 5/1/1956.

"Sign Program – Type and Location Plan, General Area," Drawing No. 397-2007, 5/1/1953.

"Existing Conditions at Monument Area," Drawing No. 397-2001A, 12/3/1952.

Contours created from 7.5 minute digital elevation data, USGS, 1998, Newton County, MO (published Rolla, MO).

DRAFT

Figure 19.

Period Plan 1943–1953

Carver Road
Stone piers flanking roadway
Springhouse
Employee's house (Tenant house)
Williams springhouse foundation
Pit toilet
Carver Bust
Dedication plaque
Drinking fountain
Superintendents residence (Shartel house)
Flagpole
Williams Pond
Stone dam
Hanging tree
Barn
Moses Carver House
Zinc mine (abandoned)
Elder Road
Carver Cemetery (rock wall dismantled prior to 1953)
Carver Branch
Williams Branch
Hankins Branch
Dry Branch

This drawing was prepared to illustrate the Cultural Landscape Report/Environmental Assessment for George Washington Carver National Monument in 2015. This drawing is provided to illustrate the evolution of historic site conditions, and is not intended to serve as a design or construction document.

0' 360' 720'

SCALE 1" = 360'

Feb 09, 2015 - 4:09pm G:\PROJECTS\George WC CLR-EA\Planning\AutoCAD\Active\GWCA_Base_20140214.dwg

Mission 66 Development at George Washington Carver National Monument

The Mission 66 Program. By the 1950s, conditions at national parks were generally in a state of deterioration. Improvements had not been made to public facilities since the New Deal era programs of the 1930s. The desperate need for building maintenance and funding was further amplified by the rapid increase in visitors to national parks following World War II. Despite the increase in visitation, park facilities remained essentially as they had been before the war. Limited National Park Service budgets led to cuts in staff, which, combined with the increasing number of visitors, jeopardized the integrity and condition of the existing natural resources. The increase in automobile usage further endangered the parks, which were generally ill prepared to accommodate an influx of vehicles.

In February 1955, NPS Director Conrad Wirth conceived a comprehensive conservation program to revitalize the national parks. The ten year capital program aimed to modernize and expand the National Park System.[103] Wirth chose to name the program "Mission 66," as he thought the word "mission" successfully expressed the urgency of the park's situation to Congress, while "66" was used to signify the end date of the program, which would be 1966, coinciding with the fiftieth anniversary of the establishment of the National Park Service. The Mission 66 plan not only sought to improve conditions at the parks through the construction of new roads, trails, and visitor facilities, but also through the establishment of increased operating budgets to maintain the parks in the future.

The goals of the Mission 66 program supported and accelerated a change in philosophy with regard to the design of buildings in the national parks. The postwar modernist architecture seen in national parks featured low profiles and horizontal massing in addition to muted colors, which helped the buildings visually blend in with their natural surroundings. This was in direct contrast to the rustic style buildings primarily favored in park structures constructed prior to World War II, which, through their picturesque character, were highly noticeable in their context.[104]

The Mission 66 Program at George Washington Carver National Monument. When NPS began operation of the national monument, only a makeshift display area existed in the large farmhouse where the superintendent resided. The need for a new museum building was recognized by the NPS, and preparation of a museum plan began in 1954. This document would serve as a forerunner to the park's Mission 66 prospectus.[105]

In the summer of 1958, the park's Mission 66 prospectus was approved. Included in the document were plans to construct a visitor center and museum building. Modifications were made to the route of the existing trail that took visitors to the site of the George Washington Carver birthplace cabin, the open fields once farmed by the Carver family, the 1881 Moses Carver house, and the Carver family cemetery (Figure 20).[106] In addition, a sculpture of George Washington Carver as a boy was proposed (Figure 21 and Figure 22).[107]

103. Ethan Carr, *Mission 66: Modernism and the National Park Dilemma* (Amherst: University of Massachusetts, 2007), 10.
104. Ibid., 134–135.
105. Toogood, 66.
106. Compare NPS Drawing No. 397-3000, "Existing Conditions - Development Area" (May 10, 1956) to NPS Drawing No. 397-3022, "Road & Trail System Plan" (November 1, 1960).
107. Ibid., 68.



FIGURE 20. The Carver Childhood Trail, 1963. Source: George Washington Carver National Monument Photo Collection.



FIGURE 21. The 1881 Moses Carver house, 1955. Source: George Washington Carver National Monument Photo Collection.



FIGURE 22. The 1881 Moses Carver house, 1965. Source: George Washington Carver National Monument Photo Collection.

In 1958, prior to beginning construction of the visitor center, the park undertook further archeological study of the farm site. Although no building locations were confirmed, additional information was obtained about the cemetery.[108] (See further discussion of archeological studies, below.)

Residences for the superintendent and the historian were completed in May 1959. The two residences, constructed south of the park entrance, were identical, with each one-story structure having a gable roof, horizontal siding, a screened-in porch, and a carport. The residences were built according to standard plans prepared in 1957 by the NPS Eastern Office of Design and Construction. At the same time, a four-unit residence to house seasonal employees was also constructed. The one-story structure was similar in style to the single family residences, and had a gable roof, horizontal siding, and a series of enclosed porches (Figure 23).[109]

108. Krahe and Catton, 216–217.

109. Toogood, 69–70.



FIGURE 23. The four-unit employee housing building, Superintendent's residence, and Historian's residence, circa 1959. Source: George Washington Carver National Monument Photo Collection.

In the spring of 1960, the former main farmhouse was moved to another property nearby, where it remains today. Seven outbuildings were also removed at this time.[110]

Construction of the visitor center began in May 1959 to plans prepared by the Eastern Office of Design and Construction. The dedication of the new visitor center was held in July 1960 (Figure 24). The visitor center was a one and one-half story structure clad in brick and wood siding with low-sloped gable roofs, and an extended open covered porch at its perimeter. A breezeway at the south end of the building led to the utility area. Construction of an adjacent maintenance/utility building was included as part of the visitor center. The visitor center was located on the site of the former main barn of the Shartel farm. Construction of the visitor center in 1959 also included utilities for the site, such as a deep water wall, underground water lines, septic systems, natural gas lines, and overhead electrical lines.[111]



FIGURE 24. The visitor center, circa 1960. Source: George Washington Carver National Monument Photo Collection.

A new entrance road and gate, signs, parking areas, and fencing around the boundary of the monument were completed in time for the dedication of the visitor center (Figure 25 through Figure 27). The new entrance road followed the path of the earlier road into the farm. The roadbed was raised and contoured, drainage culverts and curbs were installed, and the road was paved with asphalt. A new spur was built leading into the picnic area. The original extension of the road past the new visitor center to the site of the main farm house (superintendent's house) and across Carver Branch to the tenant house (historian's house) was removed. The road work included reconfiguration of the parking area in front of the visitor center, shifting the parking loop southward.[112]

A cast bronze statue of George Washington Carver as a boy by Robert Amendola was installed and unveiled in 1960 during the visitor center dedication (Figure 28). The new statue at the national monument was placed on a limestone boulder near the Carver Branch.[113]

110. Krahe and Catton, 104.
111. Ibid., 146.
112. Ibid.
113. Toogood, 69–70. The statue at the national monument was the second casting of this form by Amendola; the first was located in an urban park within the Carver Houses apartment complex at 101st Street in New York City.



FIGURE 25. Entrance to the park, shortly after the National Park Service assumed responsibility for the land. Source: George Washington Carver National Monument Photo Collection.



FIGURE 26. The entrance to the park, 1954. Source: George Washington Carver National Monument Photo Collection.



FIGURE 27. A view of the entrance to the park. Note the visitor center in the background. Source: George Washington Carver National Monument Photo Collection.



FIGURE 28. The Boy Carver statue, 1965. Source: George Washington Carver National Monument Photo Collection.

Ten mature elms were removed from the park after they were determined to be infected with Dutch elm disease in 1961. Trees in the main grove as well as other mature elms were sprayed to protect against the elm bark beetle. The spraying program continued for several years.[114]

Improved access to the site was also recommended as part of the Mission 66 Master Plan. Signs were erected at the intersection of State Highway 71 and County Road V in April 1962. A directional sign was added on Interstate 44 for eastbound traffic in 1963.[115]

Refer to Figure 29, period plan, 1953–1960.

114. Superintendent's Annual Report for 1961, George Washington Carver National Monument. 1962. The efforts continued through the 1960s and 1970s but were ultimately unsuccessful; the last American elm in the park died and was removed in 1978.
115. Toogood, 71.

Environmental Assessment and Cultural Landscape Report

for

George Washington Carver National Monument

Prepared by JMA, a CCRG company

Drawing No. GWCA 397 127384

PMIS No. _____

Legend

- 2014 GWCA Boundary
- 10-foot contour
- 1-foot contour
- Stream
- Spring
- Formal road
- Service road
- Trail/footpath
- Building or structure
- Rock wall
- Fence
- Woodland
- Fence row
- Utility line

Sources:

1966 Aerial photograph.

"Planting Plan and Miscellaneous Construction," Drawing No. 397-3017B, 6/1/1960.

"Planting Plan and Miscellaneous Construction, Memorial Area," Drawing No. 397-3019C, 6/1/1960.

Contours created from 7.5 minute digital elevation data, USGS, 1998, Newton County, MO (published Rolla, MO).

Outstanding questions:

- Were fences surrounding fields still present in 1960?

DRAFT

Boundary marker
Carver Road
Brick entrance piers
Superintendent's Residence
Historian's Residence
Four-Unit Seasonal Housing Quarters
Boundary marker
Carver Branch
Williams springhouse foundation
Carver Bust
Boy Carver Statue
Parking
Flagpole
Williams Pond
Earthen dam
Visitor Center
Maintenance Building
Carver Spring
Trail
Moses Carver House
Williams Branch
Zinc mine (abandoned)
Elder Road
Carver Cemetery surrounded by reconstructed stone wall
Walnut fence row
Harkins Branch
Carver Branch
Dry Branch
Sanitary landfill

This drawing was prepared to illustrate the Cultural Landscape Report/Environmental Assessment for George Washington Carver National Monument in 2015. This drawing is provided to illustrate the evolution of historic site conditions, and is not intended to serve as a design or construction document.

0' 360' 720'

SCALE 1" = 360'

Feb 04, 2015 - 10:47am G:\PROJECTS\George WC CLR-EA\Planning\AutoCAD\Active\GWCA_Base_20140114.dwg

Figure 29.

Period Plan 1953-1960

Continued Development of the National Monument, 1963 to Present

In the years following the completion of Mission 66-related construction at George Washington Carver National Monument, limited large-scale construction projects were conducted.

In the summer of 1963, repairs to the Moses Carver house were completed, including partial replacement of siding, reroofing, repainting, window repair, and repair of the brick chimney.[116]

A tree replanting plan was undertaken throughout the 1960s and 1970s to address tree loss to disease and storms. As elm trees gradually succumbed to Dutch elm disease and other trees were damaged by severe weather, they were replaced by a variety of other species such as hard maple, oak, walnut, native dogwood, and redbud trees; the picnic area grove formerly contained many elms.[117] New plantings were also placed to screen utilities and building foundations. For example, twelve junipers (*Juniperus scopulorum* 'Southland') were planted to screen the view from the Carver Trail of the visitor center mechanical units. Also, ornamental flower beds were added around the visitor center, including rose bushes near the entrance.[118]

Also at this time, a permanent sign system along the Carver Trail was completed. The green phenolic plastic signs with white lettering identified plants and historic points of interest along the trail (Figure 30 through Figure 32).[119]



FIGURE 30. Sign marking the birthplace cabin site, August 1963. Source: George Washington Carver National Monument Photo Collection, image 604A.



FIGURE 31. Signage along the Carver Trail, 1967. Source: George Washington Carver National Monument Photo Collection, image 3923.

116. Krahe and Catton, 219–220.
117. Ibid., 140.
118. Ibid., 141.
119. Superintendent's Annual Report for 1963, George Washington Carver National Monument. 1964.



FIGURE 32. Carver birthplace signage, date unknown. Source: George Washington Carver National Monument Photo Collection, image 602A.

The Carver bust, installed in 1952, was originally mounted on a temporary pedestal in the parking area. The bust was moved to a new location near the visitor center in 1963, and moved again to a different location near the visitor center in 1965. The cast concrete sculpture was installed on a new base at the time it was moved. The reason for the change of placement in 1965 was to move the bust to a location out of sight of the parking area, as park managers had noted that visitors frequently parked, went to view the bust, returned to their cars, and left the park, without ever entering the visitor center.[120]

Also circa 1965, a new rustic bridge was constructed at the crossing of the Carver Branch.[121]

Approximately seventy diseased elms were removed in 1966. Walnut, oak, maple, sweet gum, and other native trees were planted in the winter to replace the removed elms.[122] A Historic Structure Report for the Moses Carver house was prepared in 1966.

In 1967, an agricultural land use contract was advertised. The contract called for 145 acres of land within the boundary of the monument to be maintained in their historic character as pasture or hay lands.[123]

A strong storm uprooted 100 trees and caused damage to the visitor center and residences in 1973. An Administrative History and Historic Resource Study were completed the same year.[124]

In 1976, extensive exterior renovations were completed at the 1881 Moses Carver house. A partial interior restoration of the house was also completed at this time, including placing the structure on a new foundation.[125] In 1977, extensive repairs were made to the earthen dam by park personnel.[126]

Williams Pond, constructed by the Shartel family in the 1930s, was expanded by the NPS in 1978.

The administrative functions of the park were relocated from the visitor center to Building

120. Krahe and Catton, 90, 109; Superintendent's Annual Report for 1963, George Washington Carver National Monument. 1965. The Superintendent's Report mentions the rustic bridge and references photographs (not attached to copy received), but does not describe its materials or construction.
121. Superintendent's Annual Report for 1964, George Washington Carver National Monument. 1965.
122. Superintendent's Annual Report for 1966, George Washington Carver National Monument. 1967.
123. Superintendent's Annual Report for 1967, George Washington Carver National Monument. 1968.
124. Superintendent's Annual Report for 1973, George Washington Carver National Monument. 1974.
125. Superintendent's Annual Report for 1975, George Washington Carver National Monument and Wilson's Creek National Battlefield. January 28, 1976.
126. Superintendent's Annual Report for 1978, George Washington Carver National Monument. 1979.

No. 23 (the former Superintendent's residence) in 1979. The garage was also enclosed and finished at this time. In conjunction with the move, a new six-space parking lot was constructed in front of the building.[127]

In 1979, ten replica headstones and one footstone were replaced in the Carver family cemetery. The stones were replaced due to vandalism.[128]

In 1981, the park prepared a Resource Management Plan which included a fire management plan and a prescribed burn plan. A controlled burn of the prairie was conducted in May 1982 in conjunction with the Resource Management Plan. The prairie was later disked and native grass was planted. The prairie restoration project was documented with photographs.[129] This program continued into the late 1980s and throughout the 1990s and early 2000s.

The last traditional agricultural lease in the park expired in 1983, replaced by a leasing arrangement that emphasized the planting of historically appropriate crops and hay for a smaller 66-acre tract, to run through 1989. At the end of this lease, the park ended the leasing program entirely, and the former agricultural area became prairie units 5, 6, and 7.[130]

Construction of a new barbed wire fence at the boundary of the park began in 1982.[131] Construction was completed in phases, with the project concluding in 1985.[132] Portions of this fence have been subsequently replaced at a later date.

In 1983, a storm washed out both bridges along the Carver Trail, resulting in the flooding of the trail and damage to nearby fences. About 100 tons of crushed limestone pea-sized gravel was used to raise and level the trail surface. New wayside signs were installed, and a portion of the trail was paved with asphalt.[133]

Also in 1983, the wall around the Carver family cemetery was rebuilt in areas where deterioration was observed. Deteriorated headstones were also replaced.[134]

Following a severe storm in spring 1984, all four bridges along the Carver Nature Trail were replaced with new bridges later that year built by the Missouri Army National Guard. An accessibility ramp was also constructed at this time.[135] Also in 1984, the overhead electrical lines to the visitor center and maintenance complex were replaced with underground lines, and the septic system for the residential area was rehabilitated.[136]

The Carver family cemetery was vandalized in June 1987 and again in 1989; in 1992, the missing and destroyed gravestones resulting from this vandalism were replaced with replicas.[137]

In 1991, the George Washington Carver bust was moved and painted a metallic gold and coated with a waterproof sealer.

127. Superintendent's Annual Report for 1979, George Washington Carver National Monument. 1980.
128. Ibid.
129. Superintendent's Annual Report for 1981, George Washington Carver National Monument. 1982; Superintendent's Annual Report for 1982, George Washington Carver National Monument. 1983; Krahe and Catton, 225–229.
130. Krahe and Catton, 229–230.
131. Superintendent's Annual Report for 1982, George Washington Carver National Monument. 1983.
132. Superintendent's Annual Report for 1984, George Washington Carver National. February 18, 1985.
133. Krahe and Catton, 144.
134. Superintendent's Annual Report for 1983, George Washington Carver National Monument. February 14, 1984.
135. Superintendent's Annual Report for 1984, George Washington Carver National Monument. 1985.
136. Krahe and Catton, 146.
137. Ibid., 259.

A park-wide program to rehabilitate roads, parking lots, and sidewalks was completed in October 1991.[138]

In 1993, a new universally accessible 450-square-foot freestanding comfort station was built. The comfort station was located on the northeast side of the visitor center, at the same site as the present (2014) comfort stations. The detached comfort station was connected to the visitor center by a covered walkway.[139] As part of this construction, a new trail segment was added connecting the comfort station to the Carver family cemetery.[140]

The park began planning for further land acquisition in 1993, and a topographic survey of the 30-acre parcel at the southwest corner of the farm previously used to mine zinc and lead was completed in 1994. Mining operations had occurred in this area of the farm since the 1910s, and by 1943, a 40-foot-tall pile of mining waste had accumulated. As this parcel was not part of the original national monument, it became of specific concern to the park later, when consideration was given to adding it to the property.

Work began on a Long-Range Interpretive Plan in 1996.[141] A new General Management Plan was completed in 1997.[142]

In 1996, the park acquired a surplus 12 foot by 60 foot trailer, which was placed on the site just north of the former historian's residence, by then in use as the visitor services and resource management building. The trailer was opened to the public in April 1997 as the Carver Discovery Center, with an emphasis on children's educational interpretation.[143]

The split rail fence around the yard adjacent to the Moses Carver house was replaced with assistance from a local Boy Scout troop in 1998.

From 1990 through 1999, phased installation of upgraded museum exhibits was completed at the park.

In 1999, the National Park Service commissioned a research team from the University of Wisconsin–Madison to prepare an Integrated Management Plan for the park. The plan, which documented the cultural and natural history of the site, identified twelve historic and prehistoric sites within the boundaries of the park, including a complex site associated with Carver's birthplace cabin.[144] The other sites included the Gilmore farm, Williams farm, north-south boundary site, several lithic flakes and scatters, and the extant Moses Carver house.

Several improvements and additions were made to the trails at the monument in 2001. The Carver Trail was enhanced as 400 linear feet of asphalt sidewalk were replaced with a new concrete sidewalk. A new accessible concrete trail overlaid with a lift of recycled rubber surfacing leading to the spring was also installed at this time. In addition, a 180-foot-long universally accessible boardwalk was constructed connecting the trail to the spring with the Boy Carver statue. Two new prefabricated steel arched bridges were constructed over the Carver Branch. A new mulch-surfaced trail, 1/4 mile long, was installed

138. Superintendent's Annual Report for 1991, George Washington Carver National Monument. March 5, 1992.
139. Information provided by NPS GWCA in correspondence with the authors, January 2015.
140. Krahe and Catton, 148–149. The Administrative History references the 1993 Superintendent's Report; the 1993 report, which was not available for review for the current study, may include further information about the new trail segment.
141. Superintendent's Annual Report for 1996, George Washington Carver National Monument. 1996.
142. National Park Service. George Washington Carver National Monument – General Management Plan 1997. 24 June 1997.
143. Krahe and Catton, 149.
144. Woolpert, LLP. *Environmental Assessment For Visitor Center Renovation and Addition, George Washington Carver National Monument* (Omaha, Nebraska: U.S. Department of the Interior, National Park Service, June 2004), 2–9.

around the Williams Pond. Granite benches were installed following the construction of the trail, along with granite stones engraved with George Washington Carver quotations.[145]

In 2002, a new plank and post fence was installed from the park's main entrance at the north boundary to the headquarters area. This project was completed by park personnel.[146]

For several years, the NPS had discussed acquiring the 30-acre parcel with Evelyn Taylor, who with her husband Bud had owned the 30-acre parcel since the mid-1950s. By 2004, the Superintendent's Annual report noted that:

> The Association worked with the Monument and several other partners in 2003 and 2004 to ensure the last 30 acres of the original 240-acre Carver Birthplace Farm were donated and two hazardous mines were permanently closed and remediated. The value of the land donation is in excess of $90,000 and the value of the remediation is in excess of $40,000. Remediation work was conducted through grants from the State of Missouri and collaborative work from the Diamond Road District. The State of Missouri oversaw all work and certified the site as hazard free at the conclusion of the project.[147]

In 2003, Evelyn Taylor donated the parcel to the Carver Birthplace Association. The Carver Birthplace Association subsequently transferred the deed for this land to the NPS on June 22, 2005.

In 2003, due to concerns related to lead contamination in the water from numerous abandoned mine sites in the county, the 1959 well was abandoned, and the park water system was switched over to a shallower backup well drilled in 2000. The 1959 well was permanently sealed in December 2004, and by the summer of 2005, the park had been connected to the City of Diamond water system.[148]

The Moses Carver house underwent extensive restoration in 2005, including repairs to window trim and siding, repointing of the chimneys, replacement of the cedar shingle roof, replacement of the porches, removal of lead paint, and repainting of the entire interior and exterior in a historic color scheme.[149]

The entrance road, former residential area access road, and parking lot within the park were also resurfaced in 2005. At the same time, the park worked with Newton County to share the cost of resurfacing Carver Road leading to the park.[150]

The National Park Service Midwest Archeological Center (MWAC) conducted an intensive archeological investigation within the Area of Potential Effect (APE) for the expansion of the visitor center in April 2004. MWAC assisted in the completion of archeological preservation work at the park in 2006, including site condition assessment on all known archeological sites, shovel tests along the park entryway and in developed areas, and geophysical surveys of the cemetery and birthplace cabin site. (Refer to further discussion of archeological studies, below.)

Mitigation of tailings and other potentially hazardous deposits associated with lead and zinc mining of the parcel was completed in 2006.

On August 8, 2007, the extensively renovated visitor center was dedicated. The renovation included a 6,700 square foot addition to the 1960 building, with the addition of interactive and extended museum space, classrooms, an expanded theater, terrarium, archives, and library, as well as a tornado shelter. New exhibits were added to the museum as well as to the Moses Carver house. The renovation also included the addition of a

145. Superintendent's Annual Report for 2001, George Washington Carver National Monument. February 2, 2002.
146. Superintendent's Annual Report for 2002, George Washington Carver National Monument.
147. Ibid., 128, 208, 253; Superintendent's Annual Reports for 2003, 2004, and 2005, George Washington Carver National Monument, 2004, 2005, 2006.
148. Krahe and Catton, 147.
149. Ibid., 257.
150. Ibid., 145.

sustainable ground source heating, ventilating, and air conditioning system, and total replacement of the septic system. The expansion included a two-story addition to the west of the original building. The expanded visitor center is clad in utility brick and wood siding matching the colors of the original brick and siding. Both the new and original roofs were clad in asphalt shingles. During construction, the visitor center was housed in one of the former park housing structures near the entrance road.[151] With the completion of the visitor center complex, in 2008, the Discovery Center trailer was sold and removed from the park. In 2010, the administrative offices in the visitor center were completed, and park staff moved to the visitor center. After 2010, the former housing buildings were used for storage.

In 2009, conservation work was completed on the park's statuary. The work included professional conservation of the bronze dedication plaque, Boy Carver Statue, and the Carver Bust.

A Vegetation Management Action Plan was completed in 2011. The same year, MWAC performed an archeological survey in the park, which included geophysical surveys of the developed area east of the visitor center and Williams Homestead, and mapping and a geophysical survey of the cemetery. A pedestrian inventory of the 30-acre parcel was also completed. (See further discussion of archeological studies, below.)

Also in 2011, new wayside interpretive exhibits were installed along the Carver Trail.[152] At the same time, the interpretive structure at the Carver birthplace cabin site was replaced with a new structure of the same design and materials.[153]

In 2013, Missouri Resource Assessment Program vegetation mapping for the park was completed.

Archeological Studies

Several archeological studies have been conducted at George Washington Carver National Monument, primarily by archeologists for the National Park Service Midwest Archeological Center (MWAC) and also by the University of Nebraska at Lincoln, as described below.[154]

In April 1953, archeologist Paul Beaubien conducted archeological investigations in an effort to identify the location of the Carver birthplace cabin. Excavation sites selected based on oral history interviews uncovered two burned features and other "occupational debris in the southwest portion of the [then-] present flower garden."[155] However, no substantial archeological evidence was found to conclusively confirm the locations of the former cabin. Beaubien suggested that the park could place an interpretive marker at the location of the burned features to indicate the likely site of the cabin, and build a reconstructed cabin at another location for interpretive purposes.

In 1958, prior to beginning construction of the visitor center, the park undertook further archeological study of the farm site. Robert W. Neuman made four test trenches, two near the cemetery and two where oral history information indicated outbuildings were formerly located. Although no building locations were confirmed, the remains of fence posts for the cemetery were

151. Superintendent's Annual Report for 2007, George Washington Carver National Monument.
152. Krahe and Catton, 144.
153. Ibid., 261.
154. Information about prior archeological studies derived from summary prepared by Ann C. Bauermeister, RPA, National Park Service Midwest Region Archeological Center; see also Paul L. Beaubien, "Report of Archeological Investigations – George Washington Carver N.M., Memorandum for the National Park Service, Region Two" (National Park Service, 1954); Bill Hunt, "Trip Report: Geophysical Inventory and Shovel Test Excavations at the Proposed Site of Visitor Center Expansion, George Washington Carver National Monument (GWCA)" (National Park Service, 2004).
155. Beaubien, 7.

seen, and two unmarked graves associated with the cemetery were discovered.[156]

In 1975, a magnetic survey was performed on portions of the site by John W. Weymouth of the University of Nebraska at Lincoln. Two additional archeological surveys were performed by Ervan Garrison and Robert Bray of the University of Missouri, Columbia in 1976. These three studies all focused on possible home sites near the Moses Carver house. Garrison and David Denman, also of the University of Missouri, performed another series of archeological investigations in 1978.[157]

In 1981, the NPS contracted with the Center for Archaeological Research at Southwest Missouri State University. These studies, led by principal investigator David W. Benn, focused on developing information about the site's prehistory. The survey resulted in the location of five additional prehistoric sites within the national monument and their listing with the Archaeological Survey of Missouri.[158]

In July 1981, MWAC archeologist Janis Emery conducted a magnetometer survey inside the cemetery and in two small areas to the south and the west of the cemetery wall. Emery also conducted a resistance survey along two transects within the cemetery, and used mapping developed by Paul Beaubien during earlier excavations to mark the locations of the two burned features.

In April 2004, MWAC archeologists Bill Hunt and Ann Bauermeister conducted fieldwork including a magnetic survey and a shovel test inventory of the area proposed for the expansion of the visitor center and associated facilities. The shovel test inventory revealed no significant archeological resources in the proposed construction areas, while interpretation of the magnetic survey results indicated a possible pole-in-ground structure, garden enclosure, or corral.[159]

In September 2005, MWAC archeologists Ann Bauermeister and Michael Hammons investigated an area just south of the reconstructed birthplace cabin, using magnetic gradient and resistance survey methods. A square anomaly located southwest of the original cabin was interpreted to possibly represent a different building from the Moses Carver Farm, a structure associated with the twentieth-century Shartel Farm, or possibly the 1953 excavations by Beaubien. The 2005 study recommended analysis of spatial imagery to further understand the genesis of the anomaly.

In September 2011, MWAC archeologists Ann Bauermeister and Steve De Vore conducted large-scale geophysical surveys, mapping, and a pedestrian survey at the national monument. The work included additional and more intensive surveys of the park, with an emphasis on the developed area, the Williams Homestead, the Carver family cemetery, and a newly acquired 30-acre parcel. Magnetic and radar survey techniques and analysis revealed possible former historic building locations, including the location of Beaubien's 1953 excavation undertaken to search for evidence of the birthplace cabin. At the Williams Homestead, three previously documented mounds representing farmstead structures and/or associated debris were noted.

Evaluation of the 30-acre parcel comprising the southwest corner of the park, which included a former contaminated mine site that had been cleaned and filled by the Environmental Protection Agency circa 2006, did not reveal any archeological resources. The archeological study noted that the park planned to manage this area as a prairie. The Carver family cemetery was surveyed with non-invasive techniques to look for unmarked graves, and all above-ground cemetery

156. Krahe and Catton, 216–217.
157. Ibid., 217.
158. David W. Benn, "An Intensive Archaeological Survey of George Washington Carver National Monument" (Springfield, Missouri: Center for Archaeological Research, Southwest Missouri State University, 1981).
159. Bauermeister, summary, citing Hunt 2004, 3.

components were documented with a detailed map, GPS readings, and digital photographs.

In September 2012, MWAC Archeologists Ann Bauermeister, Steve De Vore, and Ashley Barnett conducted additional investigations to follow up on the 2011 studies, expanding the previous study area to include the adjoining prairie that occurs across on the same landform. A GPR survey addressed the majority of the developed area except for the loop drive/parking area east of the visitor center, and resistivity surveys targeted the western section of the developed area including the reconstructed birthplace cabin, the 1953 studies by Beaubien, and the area between the picnic area and Carver Road where former historic buildings locations were potentially located. The entire prairie component was also surveyed. Targeted investigations at two locations that provided magnetic and resistivity data confirmed the possible location of a non-extant historic structure, including a feature composed of numerous stacked, tabular rocks that may be part of a structural foundation.

In August 2014, MWAC archeologists Ann Bauermeister, Steve De Vore, and Ashley Barnett conducted studies at the Moses Carver house and Williams Homestead sites, including the Carver house, a significant portion of the adjacent prairie to the north, and a section of the prairie north of the Williams Homestead that was not included in the 2011 survey. The study focused on the middle of the three mounded areas present to investigate whether this area represents the former house location. Analysis of the geophysical data collected during the 2014 study is underway. Preliminary results indicate that a non-extant barn that was not previously identified may have been located in an area in the prairie to the west of the Williams Homestead.

Refer to Chapter 3 for further discussion of archeological studies as they pertain to specific resources and features.

George Washington Carver National Monument Chronology

1830s	Moses and Susan Carver settled on the site that is currently the George Washington Carver National Monument.
1835–1848	The birthplace cabin is believed to have been built. The Carver family cemetery was established by Moses Carver.
1844–1894	Moses Carver purchased and obtained patents for the entirety of the 240 acres during this period.
1865–circa 1876 or 1877	George Washington Carver lived on the Moses Carver farm from his birth until circa 1876 or 1877.
1860–1880	By this date, Moses Carver had improved acres of crops and planted about 520 orchard trees. He also planted walnut trees and vegetables.
1880	December 4: A tornado reportedly destroyed the Moses Carver dwelling and the birthplace cabin.
1881	Moses Carver constructed the Moses Carver house.
1901	Moses Carver deeded his property to two nephews and one niece.
1911	The Moses Carver farm was sold by his heirs to Samuel Warden.
1913	Samuel Warden sold the farm site to C. M. Shartel.
1916	The Moses Carver house constructed in 1881 was moved to its current location and remodeled. The cemetery wall was removed.
1930s	The earthen dam was built, creating Williams Pond.
1913–1930s	New houses and agricultural outbuildings were built on the farm.
1942	The St. Louis chapter of the NAACP persuaded the Missouri Highway Commission to install directional signage to the farm, and tourists began to visit the farm. The first Congressional legislation relating to the establishment of the farm site as a national monument was introduced.
1943	January 5: George Washington Carver died. July 14: The law designating the farm site as George Washington Carver National Monument was enacted.
1948	May 7: C. M. Shartel's son, Stratton Shartel, sold the farm site to Dawson W. Derfelt. June 12: Condemnation petition for farm property filed in federal court.
November 1949–February 1954	George Washington Carver National Monument Foundation had an agricultural lease for the site and opened the farm to visitation.
1951	Title to 210 acres of land transferred to the U.S. for purposes of establishing a national monument.
1952	September 25: First NPS superintendent and park historian arrived at site.
1952–1953	NPS demolished some non-historic agricultural outbuildings.

1952	The bust of George Washington Carver was sculpted by Audrey Corwin and presented to the park.
1953	Archeological investigations were conducted of the presumed birthplace cabin site.
1953	July 14: Dedication of George Washington Carver National Monument. The dedication plaque was installed.
1954–1955	The cemetery wall was reconstructed by the park based on archeological research.
1953–1958	Erosion mitigation of stream banks; widening and surfacing of entrance road; installation of four picnic tables; construction of pit toilets; Carver Trail first developed; Moses Carver house stabilized.
1958	Additional archeological investigations were conducted of the farm site.
1959–1960	Visitor center, utility building, Superintendent's residence, Historian's residence, and a four-unit seasonal quarters building constructed. Utility infrastructure, expanded entrance road, parking area, and fencing built. Carver Trail modified with a new route in some portions.
1960	Farmhouse and other structures constructed by the Shartel family removed.
1960	The Boy Carver statue was created by Robert Amendola and placed at its present site beside the Carver Branch in 1960.
1961	Dutch elm disease first identified in park.
1963	Repair of Moses Carver house completed.
1965	George Washington Carver bust moved to a new location and installed on a new base.
1975–1978	Archeological studies conducted to investigate possible home sites.
1976	Extensive repairs to Moses Carver house, including new foundation.
1977–1978	Repairs to earthen dam. Williams Pond expanded.
1979	Superintendent's residence (Building No. 23) converted for use as administrative offices.
1979	Replica headstones placed in cemetery.
1981	Archeological studies conducted to develop information about site prehistory and to further investigate the cemetery.
1982	Prairie restoration began.
1982–1985	Barbed wire boundary fence built around park property.
1983	Carver Trail filled and leveled; portions paved with asphalt. Cemetery wall partially rebuilt to address deterioration.

1984	Four new bridges built on Carver Trail. Overhead electrical lines buried.
1990–1999	Phase installation of upgraded exhibits completed at the park.
1991	The George Washington Carver bust moved, painted metallic gold, coated with a waterproof sealer.
1992	Missing and vandalized gravestones replaced with replicas in cemetery.
1993	Universally accessible comfort station built.
1996–2008	Trailer placed just north of former historian's residence, opened as Carver Discovery Center, 1997–2007.
2001	Improvements and additions to Carver Trail, including construction of an accessible trail leading to the spring, new contemplative loop trail around Williams Pond, and two new prefabricated steel arched bridges over the Carver Branch.
2002	New plank and post fence installed from park entrance to northern edge of headquarters area.
2003	On December 3, a local land owner donated the final 30 acres of the original Moses Carver farm in a fee-simple arrangement to the Carver Birthplace Association.
2004	Archeological studies conducted of area proposed for expansion of the visitor center.
2005	On June 22, the Carver Birthplace Association transferred the deed for the final 30 acres of the Moses Carver farm to the NPS.
2005	Major repairs were made to the Moses Carver house.
2005	Archeological studies conducted in area near reconstructed birthplace cabin.
2007	The visitor center was extensively expanded and renovated.
2009	Conservation work conducted on statuary.
2010	Administrative offices moved into expanded visitor center; housing group buildings used for storage.
2011	New wayside exhibits along Carver Trail. New interpretive structure at birthplace cabin site (as assumed based on previous archeological studies).
2011	Archeological studies conducted in developed area, Williams Homestead, Carver family cemetery, and newly acquired 30-acre parcel.
2012	Additional archeological studies conducted, expanding areas investigated in 2011 and including adjoining prairie.
2014	Archeological studies conducted at Moses Carver house and Williams Homestead sites.

1

Significance Evaluation

The significance evaluation identifies the important historical associations of the property, and comments on its architectural, archeological, and social value as they relate to the National Register of Historic Places. A property's significance is tied to a discrete period of time in which its important contributions were made and to relevant national, state, and local historic contexts. The section that follows describes the current National Register status of George Washington Carver National Monument and summarizes the information afforded in previous efforts conducted to evaluate the park's significance. This section also provides suggestions for modifications to previous evaluations based on current research and assessment.

National Register Status of George Washington Carver National Monument

George Washington Carver National Monument was administratively listed in the National Register of Historic Places on October 15, 1966, based on the National Historic Preservation Act. The significance of the property was documented through preparation of a National Register nomination that certified on September 28, 1976.[160] Revised National Register nomination documentation was in progress at the time this Cultural Landscape Report/Environmental Assessment was being prepared.[161]

The current draft National Register nomination Additional Documentation identifies the national monument as significant under Criterion A, associated with events that have made a significant contribution to the broad patterns of our history, and Criterion B, associated with the lives of persons significant in our past. The current draft revised nomination documentation also cites Criteria Consideration C, a birthplace or grave, and Criteria Consideration F, a commemorative property. The current draft nomination cites several areas of significance: science, education, community planning and development (park), and conservation.

As stated in the current draft nomination Additional Documentation section:

> The George Washington Carver National Monument is significant for its association with the early life of [Dr.] George Washington Carver (circa 1865–January 5, 1943), the scientist, agriculturalist, educator, and humanitarian. It is significant under Criterion B, at the national level, as the birthplace and boyhood home [of] George Washington Carver. The national monument is also significant under Criterion A, at the national level, as an outstanding example of a district that commemorates the life and accomplishments of a leading African American scientist and educator. The associated area of significance under Criterion A is Community Planning and Development (Park) and Conservation. [162]

In the nomination Additional Documentation section, the National Park Service Midwest Regional Office has clarified the determination of contributing and non-contributing resources as follows:[163]

Contributing Resources

Buildings:

- Moses Carver Late Period House – (1 contributing building; CLI 120890; LCS 442; HS-05)

160. Richard L. Ortega, George Washington Carver National Monument, National Register of Historic Places nomination form, April 6, 1976, (NRIS Number: 66000114).
161. The current draft nomination, titled "George Washington Carver National Monument (Additional Documentation and Boundary Increase)," was prepared by Jason Gart, Senior Historian, History Associates, Inc., Rockville, Maryland, and is dated September 26, 2014.
162. Gart, National Register Nomination Additional Documentation (draft).
163. Correspondence by NPS MRWO with the authors.

Sites:

- Entire National Monument Landscape – (1 contributing site; CLI 500391)
- Native Vegetation– (1 contributing site; CLI 140592)
- Carver family cemetery – (1 contributing site; CLI 120786; LCS 5039; HS-31)
- Carver Birthplace Cabin Site – (1 contributing site; archeological site 21NE119)
- Carver Spring – (1 contributing site; CLI 121336)
- Carver Branch – (1 contributing site; CLI 121338)
- Williams Branch – (1 contributing site; CLI 121340)
- Walnut Fence Row – (1 contributing site; CLI 121348)

Structures:

- Carver Family Cemetery Wall – (1 contributing structure; LCS 70020; HS-31A)[164]
- Birthplace Cabin Site – (1 contributing structure; CLI 120888)[165]
- Carver Trail – (1 contributing site; CLI 121332)

Objects:

- Bust of George Washington Carver – (1 contributing object; CLI 121340; LCS 5036; HS-26)
- Boy Carver Statue – (1 contributing object; CLI 120900; LCS 5038; HS-30)
- Dedication Plaque – (1 contributing object; CLI 120904; LCS 5037; HS-27)
- Monument Site Boundary Markers – (2 contributing objects; CLI 120892; LCS 70022; HS-35)[166]

Non-contributing Resources

Buildings:

- Visitor Center and Utility Building – (1 non-contributing building; CLI 121318)
- Superintendent's Residence – (1 non-contributing building; CLI 121324)
- Historian's Residence – (1 non-contributing building; CLI 121326)
- Four Unit Seasonal Quarters – (1 non-contributing building; CLI 121328)

Sites:

- Gilmore Cabin/Farm site – (1 non-contributing site; CLI 121316; archeological site 21NE120)
- Williams Cabin/Farm site – (1 non-contributing site; CLI 121312; archeological site 21NE121)

164. NPS MWRO has noted that the cemetery wall represents the commemorative period and therefore should be counted as a contributing resource separately from the cemetery, which represents the historic period. Correspondence, NPS MWRO with the authors.

165. NPS MWRO has described the Birthplace Cabin Site as "the NPS-created commemorative log structure that sits on top of the ground," thus the resource is considered a structure rather than a site. Correspondence, NPS MWRO with the authors.

166. Although the draft National Register Additional Documentation classifies the boundary markers as objects, Cultural Landscape Report guidelines do not consider objects; therefore, for purposes of the CLR analysis the boundary markers are considered structures. See chapter three for further discussion of the markers.

- Williams Pond/Spring – (1 non-contributing site; CLI 120894)
- Orchard – (1 non-contributing site; CLI 121352)
- Prairie – (1 non-contributing site; CLI 121350)

Structures:

- Williams Springhouse Foundation – (1 non-contributing structure; CLI 120902; LCS 70023; HS-36)
- Williams Pond Earthen Dam – (1 non-contributing structure; CLI 120896; LCS 70024; HS-37)

These resources and other site features are further discussed in Chapter 3: Existing Conditions Documentation and Comparative Analysis.

LRIP and CLI Significance Evaluation

In the Long-Range Interpretive Plan (2007) the park significance is summarized as:

- The national monument preserves Dr. Carver's birthplace and childhood home, where the experiences of his formative years influenced his journey to becoming one of this nation's most distinguished scientists and humanitarians.
- The national monument is the nation's first memorial and unit of the National Park System to commemorate the achievements of an African American.
- The national monument is the first birthplace national monument of an individual other than a United States President.

The Cultural Landscape Inventory (CLI) completed for the national monument in 2010 noted that although the National Register nomination lists several twentieth century features associated with the park and its mission to honor Dr. Carver, "the commemorative landscape aspect of the property, including criteria considerations, is not adequately documented."[167]

In assessing the significance of the cultural landscape, the CLI notes both the significance of the setting in encouraging Dr. Carver's interest in nature and agriculture, but also the importance of the commemorative character of the national monument, which honors Dr. Carver's life and work:

> The landscape, which is presented as being intentionally minimally designed, is commemorative in nature reflecting the National Park Service's assessment of George Washington Carver's formative boyhood years where he was exposed to agriculture and other life ways that shaped his personality and contributed to his many achievements. The landscape reflects the location, setting, feeling, and association of Carver's formative years.
>
> George Washington Carver National Monument is significant because it was the birthplace and home where Carver spent his formative years that set him on the road to becoming one of this nation's most distinguished scientists and humanitarians. The park as an established national monument, memorializes the life, accomplishments and contributions of George Washington Carver, and preserves the landscape setting of the Moses Carver Farm where George was born into enslavement. The landscape captures the ambiance in which Carver began his earliest scientific observations about the natural world around him.[168]

In response to the findings of the CLI, the Missouri State Historic Preservation Office noted:

> . . . we concur with your determination that the Cultural Landscape does contribute to the National Register of Historic Places listed

167. *Long-Range Interpretive Plan*; Cultural Landscape Inventory, 18.

168. Ibid., 20. The term "lifeways" refers to a customary or traditional manner of living, including customs, practices, and arts.

George Washington Carver National Monument district.[169]

National Register Criteria for Evaluation. In order for a property to be eligible for inclusion in the National Register of Historic Places, it must possess significance under one of four criteria. The Criteria for Evaluation document states:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> B. That are associated with the lives of persons significant in our past; or
>
> C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> D. That have yielded, or may be likely to yield, information important in prehistory or history.[170]

National Register Significance of George Washington Carver National Monument. The existing National Register documentation, together with additional research conducted on behalf of this study, served as the basis for evaluating the significance of the national monument conveyed herein.[171] The current draft nomination Additional Documentation in progress is cited herein. This documentation was reviewed in terms of relevant National Register criteria and the guidance provided in the National Register Bulletin: *How to Apply the National Register Criteria for Evaluation*.[172] In addition, the findings of the 2010 CLI relative to the significance of the cultural landscape were reviewed in developing this evaluation.

As noted in the draft National Register nomination Additional Documentation, George Washington Carver National Monument is nationally significant under National Register Criterion A for its association with events that have made a significant contribution to the broad patterns of our history, and under Criterion B for its association with the life of Dr. George Washington Carver, a person significant in our past. It is also significant under Criteria Consideration C, a birthplace or grave, as the birthplace of Dr. George Washington Carver, and under Criteria Consideration F, as a commemorative property.[173]

As noted in the draft National Register nomination Additional Documentation, the national monument is significant in the areas of science, education, community planning and development (park), and conservation.[174]

George Washington Carver National Monument is significant as the first national monument, park, or site to recognize an African American, and to recognize a citizen other than a United States President. The creation of a national monument to honor an African American was at least partially rooted in political concerns of the time. Mr. Richard Pilant, Professor of Social Science at Washington University in St. Louis and a strong advocate for the establishment of the national

169. Mark. A. Miles, Director and Deputy, State Historic Preservation Officer, to Roberta Young, Inventory Coordination, National Park Service, Midwest Region, re: George Washington Carver National Monument, July 12, 2010.
170. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (Washington, D.C.: Department of the Interior, 1995).
171. Gibbs; Gavin and Styles.
172. Patrick W. Andrus and Rebecca H. Shrimpton, eds., *How to Apply the National Register Criteria for Evaluation* (Washington, D.C.: National Park Service, 1990, revised 2002 for internet).
173. Gart, National Register Nomination Additional Documentation (draft)..
174. Ibid.

monument, explained in a letter to Secretary of the Interior Harold Ickes:

> . . . may I emphasize that this Memorial was pushed ahead in time of war, because its proponents considered it a war measure designed to furnish a worldwide symbol of racial goodwill for the United Nations now and a partial refutation of the most damaging accusations the Axis has been able to level against us in this war—charges relating to our treatment of the Negro . . . .as soon as the site is acquired and takes on national official character that representatives of the different United Nationals be invited to take part at the dedication thereof as the first memorial in world history consecrated to race peace . . . that this be an annual affair serving as a world sounding board for the doctrine of race peace and progress.[175]

The national monument is important as the birthplace of George Washington Carver. Dr. Carver is considered to be "one of the leading agricultural scientists and humanitarians to emerge in America during the late nineteenth and early twentieth centuries. In addition, he is considered to be one of the most significant African Americans of this same epoch. Since its inception, George Washington Carver National Monument has served as a symbol, for all Americans, of an individual who overcame tremendous odds to realize a number of nationally and internationally significant achievements."[176] As noted in the CLI, as a reflection of his humble beginnings and formative childhood years. Echoing and building upon the National Register nomination, the CLI describes the influence of his early years as follows:

> The natural environment, the self-sufficient lifestyle of the early farmer, and guidance from Moses and Susan Carver, as well as Andrew and Mariah Watkins during his stay in Neosho, were all strong factors during George's formative years. In later life he spoke favorably of his early experiences on the Moses Carver Farm. From this humble beginning, George Washington Carver rose to become a renowned scientist, educator and humanitarian. His contributions to scientific agriculture and his efforts in an extension service for rural farmers brought him nation-wide recognition.[177]

As noted in *Springs of Genius*, although most of Dr. Carver's accomplishments as an educator, botanist, agronomist, and humanitarian occurred at Tuskegee Institute in Alabama, the farm achieves its significance as the place where Dr. Carver spent his formative years, assisting in the farm work and exploring the back woods.[178] The park interprets the landscape setting that influenced Dr. Carver as a young child and encouraged his development as a scientist, educator, and humanitarian. Upon acquisition of the Moses Carver farm by the NPS, few historic structures were present and little documentation remained of the period of Dr. Carver's early life at the site. Interpretation therefore focused on the natural and agricultural surroundings that would have been present during Dr. Carver's boyhood, and their influence on his life and work. As noted in the 1973 Historic Resource Study and Administration History, the addition of features for interpretive or commemorative purposes ". . . presented a challenge of how to appropriately represent and interpret a complex man of great achievement who preferred a quiet and simple lifestyle and little fanfare."[179] In initial development of the site, the NPS sought a balance between restoration of the natural landscape (e.g., re-establishing plant communities) and the careful integration of interpretive features and memorials to George Washington Carver.

During the first decade after the NPS acquired the site, the majority of the structures associated with subsequent property owners were removed. A formal entrance to the site was created, with a

175. Pliant to Ickes, January 24, 1944, "Proposed George Washington Carver National Monument, Federal Record Center, Kansas City, Missouri, Accession No. 65A719, FRC 150293, cited in Toogood, 56.

176. Harrington et al., 1; *Resources Management Plan* (1993), 3.
177. Cultural Landscape Inventory, 20.
178. Harrington et al., 1; *Resources Management Plan* (1993).
179. Toogood, 32.

park-like setting of open lawn and large trees. A picnic area, visitor center, and interpretive trail were established to accommodate visitors and connect them with Dr. Carver's life through interpretive information, access to the landscape features known to Dr. Carver, and through provision of peaceful and contemplative spaces.

In particular, to interpret the way in which Dr. Carver experienced and learned about nature as a boy, the NPS developed the Carver Trail to enable visitors to experience the setting as Dr. Carver understood it. Along the trail are interpretive features designed to provide information without being visually intrusive. For example, a stone boulder with an inset bronze plaque was placed near the birthplace cabin site in 1953; a plaque commemorates the establishment of the park, noting: "Within this area by an Act of Congress of July 14, 1943, is preserved the birthplace of George Washington Carver who rose from slavery to become a distinguished scientist and great force in creating racial understanding."

The CLI notes that the trail

> . . . is laid out to learn about Carver sequentially from birth into enslavement represented by the outline of the birth cabin, to the curious boy in a secret garden represented by the "Boy Carver Statue," to a young adult who visited Moses and Susan Carver represented by the late period house, past the cemetery which is not only reflective but also a reminder of his survival and perseverance, to the amphitheater where his inspirational audio message at the Carver bust "start for the top and say 'I Can," which allows for his message to still be delivered freely to all those willing to ask, and then on to the visitor center where education and the memorialization where Carver is presented not as a man of the past, but one of the present and future.[180]

The trail leads from the visitor center past the plaque and site of the slave cabin, into the woodlands along the stream where Dr. Carver spent many childhood hours exploring nature. The Boy Carver statue, designed and cast by Robert Amendola and erected on a limestone boulder near Carver Branch in 1960, reminds the visitor of the young Carver's curiosity and love of nature. The trail continues past the Williams Pond to the Moses and Susan Carver house, constructed in 1881 and moved to its current location in 1916, which George Washington Carver visited as an adult. The trail then takes visitors to the Carver family cemetery, set aside by Moses Carver as a one-acre plot for use as a family cemetery shortly after he settled in Newton County. The cemetery contains the graves of Moses and Susan Carver, family members, and local residents. The 4-foot-high dry-laid stone wall protecting the graves from livestock was removed by subsequent landowners and reconstructed by the NPS in 1954.

The trail continues to an amphitheater and the Carver bust exhibit. The bronze-painted cast concrete bust, created by Audrey Corwin in 1952, features an audio recording of George Washington Carver speaking at a commencement address in 1942. The path then leads back to the visitor center, where further information about Dr. Carver's life and achievements is presented.

The national monument contains features that illustrate the natural setting of George Washington Carver's boyhood years as well as the memorialization of his life and work. The Carver family cemetery is the only remaining constructed feature that was present in the landscape during Carver's boyhood. The extant Moses Carver house may not have been present when George Washington Carver lived at the Moses Carver farm. Although archeological investigations have identified probable locations of the cabin where Dr. Carver was born, no above-ground evidence remains. The landscape and setting convey the character and resources—fields, woods, stream, and abundant trees, wildflowers, and other plants—that supported his development and interests in agriculture, nature, and science. The features added by the National Park Service as part of the establishment and initial development of the national monument circa 1960 contribute to the commemorative theme as part of the interpretive resources created to help visitors understand Dr. Carver's life and work. The landscape reflects

180. Ibid., 24.

NPS efforts to preserve the qualities of integrity related to setting, feeling, and association, while the trails illustrate the features implemented to support commemoration.

Many of the features that supported visitor needs and those of park operations were constructed between 1953 and 1960 through funding afforded by the NPS nationwide Mission 66 initiative. These features—the visitor center, entrance drive, parking lot, Carver Trail, park maintenance facilities, and the housing and administrative complex—survive today. The visitor center, however, has been significantly altered and no longer conveys its appearance as a Mission 66-era designed structure. The Carver Trail has also been substantially altered, but continues to contribute strongly to the theme of commemoration. The Mission 66 residences, as well as the utility area and maintenance building, were essential to operations and thus support the theme of commemoration through establishment and development of the park. These features, however, do not meet listing requirements as unusual examples of the type under Criterion C and are not indicated here as significant for their architecture.

Period of Significance. The suggested period of significance for George Washington Carver National Monument consists of two timeframes. The first period encompasses the years in which George Washington Carver lived at the site from his birth circa 1865 until he left at the age of eleven to attend the Neosho Colored School in 1876. This period includes the years in which Carver's early life on the farm formed his great appreciation for nature, and led to his lifelong work with plants for agriculture and medicinal uses. As noted in *Springs of Genius*, this period is of the greatest historical significance.[181] The draft National Register nomination documentation describes this period of significance as encompassing:

> . . . the early life experiences of George Washington Carver, from his birth circa 1865, through his childhood and formative years on the Moses and Susan Carver farm, to his departure from the property in search of a formal education circa 1876.[182]

The draft National Register nomination documentation also cites a second period of significance extending from 1943 through 1960, noting that this period

> . . . represents the era in which local, state, and national officials, at the urging of Richard Pilant, and others, began actively promoting, and later developing, the landscape dedicated to memorializing the accomplishments of George Washington Carver. The period concludes in 1960 with the dedication of a Mission 66 visitor center that today serves as the key components of the commemorative landscape.[183]

The second period reflects land acquisition and establishment of park infrastructure by the NPS to support commemoration and interpretation of Dr. Carver's life and work. The draft nomination Additional Documentation provides a start date of 1943 for this second period of significance, based on the date of establishment of the park.[184] The second period concludes with the dedication of the visitor center, as noted above.

The CLI suggests that the interpretive development of the cultural landscape through 2007 is significant under the theme of commemoration. Although the NPS site restoration efforts continued through 2007 (and are ongoing), an end date of 1960, as noted in the current draft National Register documentation and confirmed by NPS MWRO, is considered appropriate for the period of significance in that this date is tied to completion of the initial physical development by NPS of the national monument. Alterations and additions constructed between 1960 and 2007 are not linked to the establishment of the park that conveys its primary commemorative significance, and are therefore not considered inherently significant as part of the

181. Harrington et al., 1.
182. Gart, National Register Nomination Additional Documentation (draft).
183. Ibid.
184. Ibid.; correspondence, NPS MWRO with the authors.

theme of commemoration.

The dates followed for each period of significance in analysis for this study are thus consistent with those identified for the National Register Additional Documentation, in progress at this writing.

Chapter 3: Existing Conditions and Comparative Analysis and Assessment

3.0 Introduction

This chapter documents, through narrative description, photographs, and labeled maps, the existing landscape features associated with George Washington Carver National Monument. The existing conditions documentation forms the basis for a comparative analysis, which evaluates to what degree the park landscape reflects its character and composition during the periods of significance identified in the previous chapter (circa 1865–1876 and 1943–1960). Comparison of the contemporary landscape with historic conditions helps to identify features that contribute to the National Register of Historic Places significance of the park, and to an understanding of its historic integrity. These qualities are important considerations that help to structure the treatment plan featured in chapter five.

This chapter is comprised of five sections. The first section—**Park Environmental and Cultural Context and Setting**—depicts the character and configuration of the landscape surrounding the park. The second section—**Overall Park Composition**—describes the park landscape as a whole. The third section—**Documentation and Assessment by Landscape Characteristic**—depicts the current condition and historic evolution of extant landscape features. The information is organized into a series of landscape characteristics, which are the tangible and intangible aspects of a property that collectively convey its historic character and aid in the understanding of its cultural importance.[185] They range from large-scale land use patterns and relationships to site details and materials. The following twelve landscape characteristics are used to document George Washington Carver National Monument:

- **Natural systems and features** are the environmental resources and qualities that have influenced the development and physical form of a landscape. They include the underlying landform and topography, soils, and water resources, as well as attendant native plant communities.

- **Responses to natural resources** are examples of cultural responses to environmental conditions and associated natural features. They include such observances as the methods and materials used to construct and site buildings and structures, land uses relating directly to available resources, and storm water management practices.

- **Patterns of spatial organization** reflect the three-dimensional organization of physical forms and visual associations in a landscape, including the articulation of ground, vertical,

185. Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan, *A Guide to Cultural Landscape Reports; Contents, Processes, and Techniques* (Washington: Department of the Interior, National Park Service, 1998), 53.

and overhead planes that define and create space.

- **Views** are locations that afford expansive and panoramic prospects of the landscape, and can be either naturally occurring or designed. **Vistas** are deliberate directed views often meant to orient the gaze to a linear feature or particular focal point.

- **Topographic modifications** are human-generated alterations of a land surface. Topographic modifications are often associated with such needs as accessing potable water, grading roads and paths, siting buildings, and draining storm water.

- **Land uses and activities** are the principal cultural activities in a landscape that form, shape, and organize it, and are often derived from site-specific environmental conditions.

- **Circulation** includes the spaces, features, and applied material finishes that constitute the systems of movement in a landscape.

- **Cultural vegetation** includes the deciduous and evergreen trees, shrubs, vines, ground covers, and herbaceous plants that have been introduced in a landscape by cultural activities.

- **Buildings** are elements constructed primarily for sheltering any form of human activity in a landscape. **Structures** are elements constructed for functional purposes other than sheltering human activities.

- **Utilities** are the systems and features that store and channel public service elements such as electricity, fuel, telephone, cable, water, and sewer.

- **Small-scale features** are landscape elements providing detail and diversity for both functional needs and aesthetic concerns in a landscape.

- **Archeological resources** are the traces or deposited artifacts in a landscape, evidenced by the presence of either surface or subsurface features.[186]

Over the pages that follow, the park's unique features and systems are individually identified and described in accordance with the landscape characteristics noted above. The condition of each of the features is also assessed. All features are considered to be in good condition unless otherwise noted.

The comparative analysis portion of this chapter is composed of a discussion of the origin and evolution of each inventoried feature. Changes that have been made to the feature since its initial establishment and the impact on the character of the feature is also discussed, resulting in an assessment of historic integrity. Those features determined to survive with integrity from the period of significance—that is, continue to convey their historic associations—are identified as contributing resources, while features that postdate the period of significance, or have lost historic integrity, are indicated as non-contributing resources. Features present historically that are no longer extant are also identified, and characterized as missing resources.

The fourth section of this chapter—**Assessment of Integrity**—follows from the information developed as part of the comparative analysis. It is based on a comparison of the overall landscape to each of the periods of significance to determine whether historic associations are conveyed.

186. Page, Gilbert, and Dolan, 53; and Linda Flint McClelland, J. Timothy Keller, Genevieve Keller, and Robert Z. Melnick, National Register Bulletin 30: *Guidelines for Evaluating and Documenting Rural Historic Landscapes* (Washington: Department of the Interior, 1990).

The fifth and final section of this chapter—**FMSS Data Table**—summarizes the relationship between the landscape characteristics addressed in the chapter and the park's Facility Management Software System (FMSS).

3.1 Park Environmental and Cultural Context

See Figure 33, Context and Location Map.

George Washington Carver National Monument is located along Carver Road approximately 2-1/2 miles from the town of Diamond, Missouri, in the far southwestern corner of the state. The park falls within Marion Township, which is administered as part of Newton County. The Newton County seat is Neosho, located fourteen miles to the southwest. The nearest city is Joplin, located 13 miles to the northwest. Although the majority of the city of Joplin falls within adjacent Jasper County, approximately one-quarter of Joplin residents reside in Newton County.

Interstate 44 is the primary east-west route through Southwest Missouri, while Interstate 49 serves as the principal north-south route through the region. Both of these interstate highways come within 8 miles of the park. The park entrance is located along Carver Road. Visitors reach Carver Road from County Road V, which is accessible from exits associated with the two nearby interstates.

3.1.1 Physiography

George Washington Carver National Monument sits atop the Springfield plateau or plain at the western edge of the Ozark Mountains (Figure 34). The region is known as the Ozark Highlands physiographic province, which is characterized by an area of uplift that extends across much of the southern half of Missouri and the northern third of Arkansas. It is expressed as low mounded dome dominated by a central ridge that extends east from the Mississippi River into Arkansas and Missouri. The dome, which exhibits greater relief and steeper slopes than the surrounding terrain, is irregularly broken by local faulting and incisions formed by watercourses as they traverse less resistant bedrock. Isolated hills, referred to as knobs or balds, frequently rise above the surrounding landscape.

The contour signature of the physiographic province includes broad, smooth valleys, and low hills with rounded summits. Slopes associated with stream valleys can sometimes be steep, and feature bedrock escarpments and outcroppings.

The Springfield plateau is an undulating plain that extends west into northeastern Oklahoma. The plateau is bounded on its north and east by the Missouri and Mississippi River valleys and on the south by the Arkansas River valley. The terrain of the Springfield plateau reflects the relative resistance of the underlying geology—composed of limestone and chert—to chemical and physical weathering.

Elevations across Newton County vary to a great degree, ranging from 1,360 feet above mean sea level (AMSL) at the Barry County line, to 830 feet AMSL along Shoal Creek as it crosses the Kansas border.[187] Elevational change within the park is narrower, ranging from a high point of 1,087 feet AMSL along portions of Carver Road and in the southwestern corner of the park to a low of 1,038 feet AMSL where Carver Branch exits the property along its western boundary.

187. Max W. Aldrich, *Soil Survey of Newton County, Missouri* (Washington, D.C.: U.S. Government Printing Office, September 1989), 2.

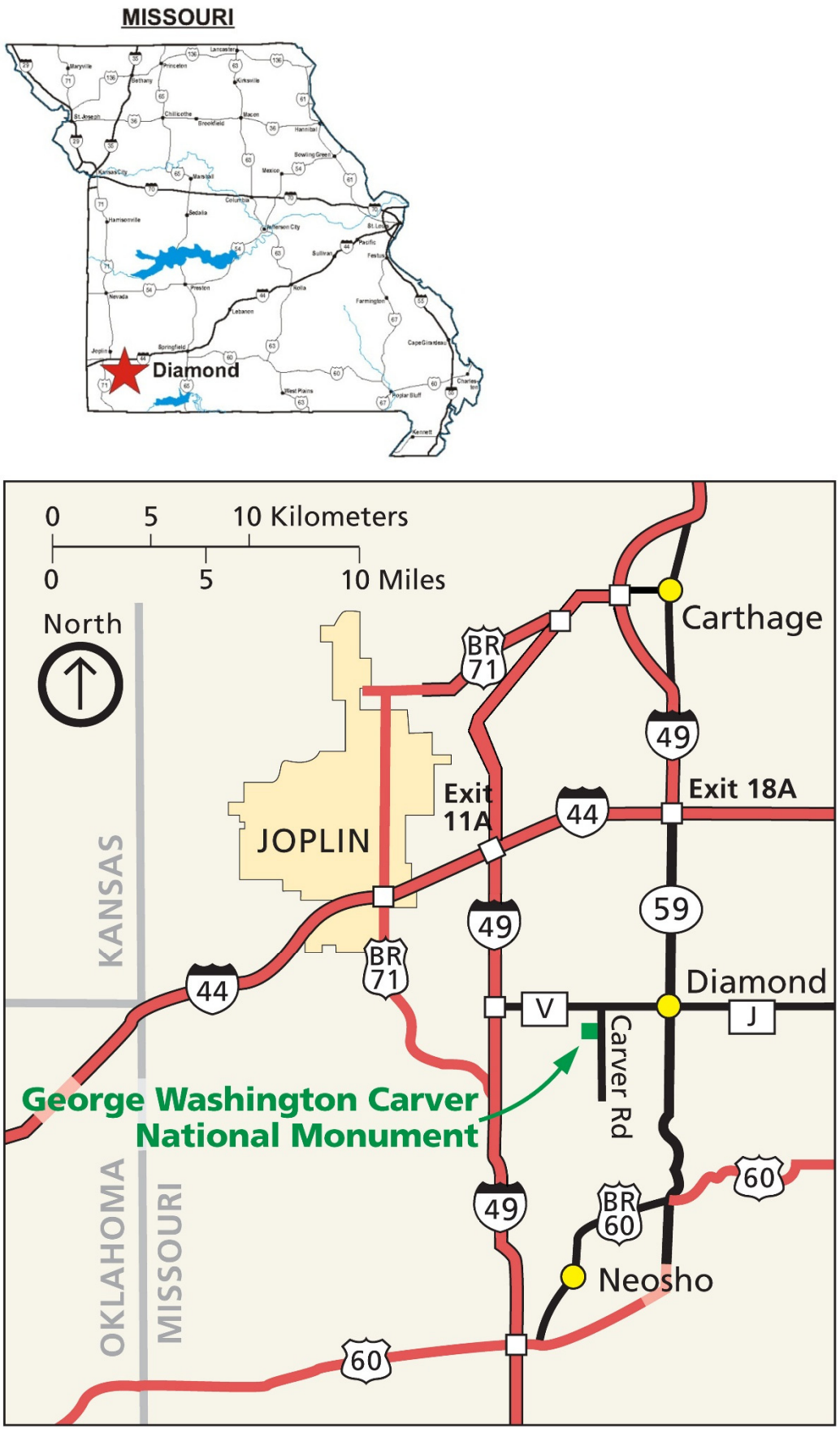


FIGURE 33. Context and Location Map.

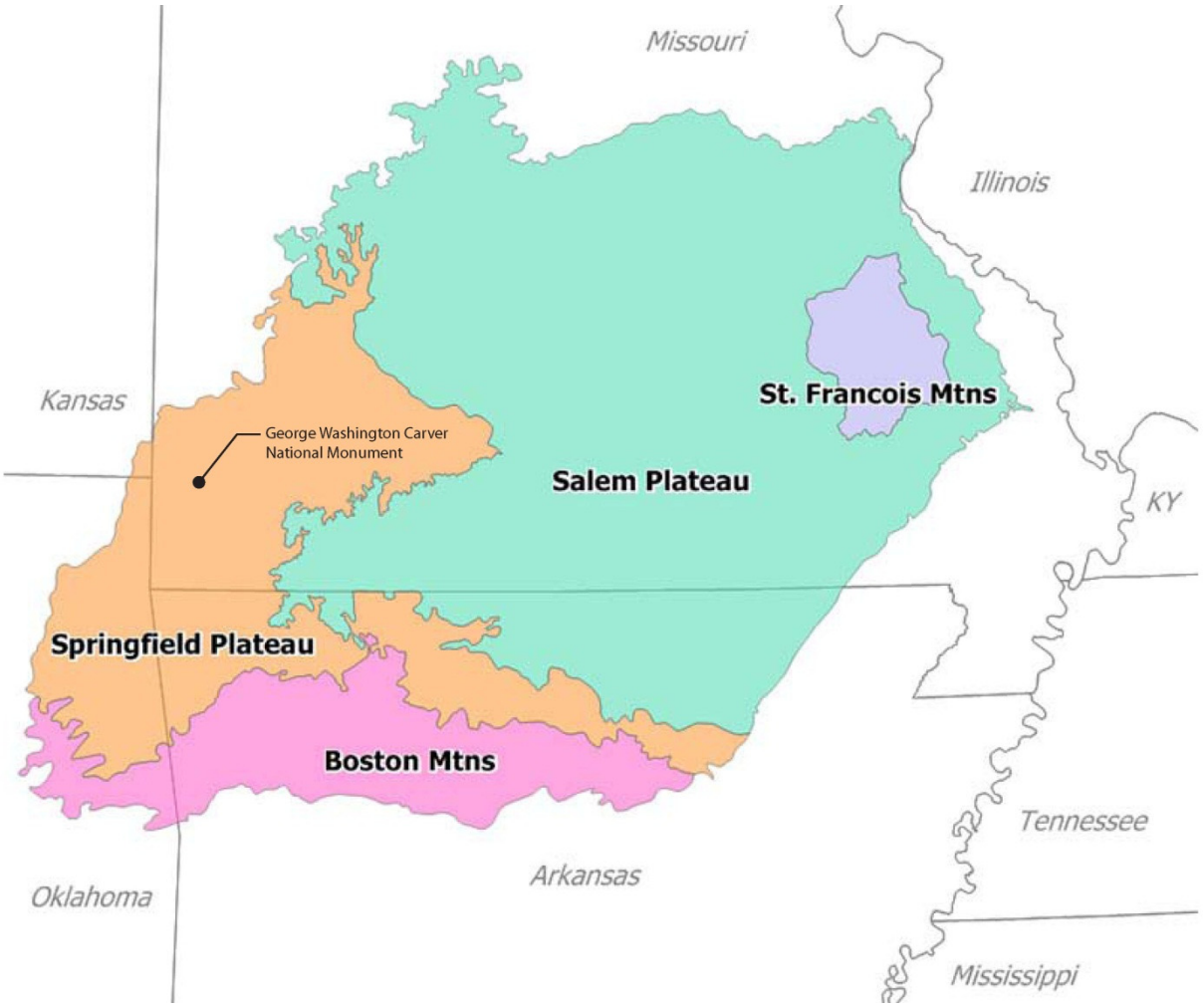


FIGURE 34. Subregions of the Ozark Highlands physiographic province. Source: Wikimedia Commons, 2006.

3.1.2 Geology and Soils

The bedrock associated with the Springfield plateau consists of sedimentary rocks ranging from Mississippian Reed Springs limestone to Pennsylvanian sandstone, and also includes dolomite and shale. The geology is composed primarily of stratified limestone interspersed with layers of boulders and chert, which is an impure form of flint. These rocks are of marine origin and belong to the Mississippian Series of the Lower Carboniferous age. The landforms associated with the local geology—known as karst—are the result of weathering in the underlying, calcium-rich limestone, coupled with the resistance of the chert. Over millions of years, ground water that has percolated through fractures in the limestone has slowly dissolved and enlarged the fractures until the bedrock is a network of tunnels and caves. Karst features, such as springs, losing streams, sinkholes, and caves, are common features of the limestone geology of the Springfield plateau.[188]

188 A losing stream, also known as an influent stream, is one that loses water as it flows downstream due to infiltration into the ground. Infiltration occurs because the water table falls below the bottom of the stream channel. This is in contrast to the more commonly seen "gaining" stream, which increases in water volume as it moves downstream and gains water from the local aquifer. Losing streams are common in regions of karst topography where stream water can be captured by an

The cherty limestone has had a significant impact on soil formation. Residuum, a combination of clay and chert resulting from bedrock disintegration, is often a component of local soils, particularly on the upland prairies.[189] Soils in the region are also composed of wind borne deposits known as loess. The depth of the loess ranges from less than 1 inches to 6 inches, depending on the extent of erosion that has occurred. The soils are typically poor and thin, except in the river valleys. The soils of the Springfield plateau are generally richer than other parts of the Ozark Highlands.

Soils within the park fall within the Hoberg-Keeno association, characterized by gentle to moderately sloping, moderately well-drained, silty and cherty soils on uplands and terraces. This association is well suited to agriculture. Soils are generally shallow with moderate to high permeability. Within Newton County, approximately one-half of the association is used for pasture, hay, or tall fescue seed. The other half is cropped. The primary crops grown include small grains, soybeans, and grain sorghum. Chert fragments on and below the surface, a restricted rooting depth, wetness in spring, and a low available water capacity serve as limitations on agricultural activities. The association is also generally suited to building site development and some kinds of on-site waste disposal. As with agriculture, the limitations of this soil for building purposes include wetness, restricted permeability in the fragipan, and chert fragments.[190]

Within the park, soil types include Hoberg, Keeno, and Wanda silt loams, and Secesh, Cedargap, and Carytown silt loams.[191] The Hoberg, Keeno, and Wanda soils occur on gently to moderately sloping lands on uplands and terraces. They are moderately well to well drained, and have moderate fertility and a low or acidic pH. They tend to occur adjacent to each other and comprise a large percentage of the park's soil composition. They can be classified as dry-mesic to mesic, and most likely formed under the tallgrass prairie. They are well suited to prairie restoration.

Secesh, Cedargap, and Carytown soils occur along streams or in depressions. These soils are often exposed to flooding and sit above perched water tables. While most are wooded, they are also capable of supporting grassland vegetation. The geology of the region also includes elements that have been the focus of mineral extraction activities. Southwestern Missouri is part of a tri-state zinc and lead mining district with Kansas and Oklahoma. The northwest-trending fold structures and faults, impermeable shale layers above and below the Mississippian limestones, and karst topography are thought to have funneled zinc- and lead-rich fluids into Mississippian-age chert breccias or angular broken rock fragments.[192] Lead was first discovered near the location of present-day Granby, Missouri, in 1850.

Lead deposits began to be mined in Granby by 1854. During the Civil War, the contested nature of the region led to the closing of the mines. The mines were reopened after the war; the arrival of rail lines allowed for shipping of extracted minerals to markets, and led to a period of regional prosperity. A mining boom began in Joplin, Missouri, around the turn of the twentieth century and continued until 1957. At one time, the tri-state district was the world's largest zinc producer. During World War I, extraction of lead, zinc, and tripoli contributed to the American military effort.

Circa 1915, a zinc mine was developed in the southwest corner of the Moses Carver farm that operated until about 1920. Paul Miller, a journalist and former resident of Diamond, wrote that the Granby & Neosho mine later included a 250-ton mill erected in August 1929. According to Miller, the mill was owned by the Tulsa-Diamond

underground cavern and subterranean river system formed from limestone bedrock dissolution.

189. Aldrich, 71.
190. Ibid., 8.
191. Harrington et al., 50–51.
192. *Geologic Resources Inventory Scoping Summary*, 2011.

Corporation.[193] Although Thomas B. Nolan, the U.S. Geological Survey's acting director, stated that two shafts were sunk in 1935 and 1939 to depths of over 60 feet and 120 feet respectively, the mine appears to have remained idle until the early 1940s, except for some exploratory drilling, when wartime needs spurred a revitalization of the mine. The mineral rights to the land were then leased by the Liberty Mining Company of Tulsa, Oklahoma, which began mining operations probably early in 1942 but ceased operations around the end of 1943. Zinc production during this period was relatively small.[194] However, the company left a tailings pile said to be 40 feet high. The 30-acre parcel of the original Moses Carver farm where the mine was located was not acquired with the rest of the park in the early 1950s. The property was later integrated into the park following mitigation of the environmental hazards associated with the tailings from the defunct mine in 2006.

3.1.3 Hydrology

Much of Newton County falls within the Spring River watershed. Shoal Creek is the largest stream within the county. Shoal Creek empties into the Spring River near Riverton in Cherokee County, Kansas. The creek enters the county from the east, and traverses it in a northwesterly direction, continuing through the city of Joplin, where Shoal Creek serves as the primary water supply. One of Shoal Creek's attractions is Grand Falls, a large waterfall located south of Joplin, Missouri, that runs through Wildcat Glades Conservation and Audubon Center.

All of the water resources associated with George Washington Carver National Monument drain into Shoal Creek.

3.1.4 Vegetation

The region falls within a prairie-forest transition zone that forms the western edge of the Eastern hardwood forest, but also includes areas of savanna and prairie typical of the landscape further west. Dominant tree species of the Eastern hardwood forest, including various oaks and hickories, characterize the open woodlands of the region. Otherwise, vegetation generally varies depending on slope, available moisture, solar orientation, soil type, and past land use. Mosaics of bluestem prairie are present where cultivation has not occurred (Figure 35).

Many of the species associated with prairie-forest transition areas, such as oaks and grasses are highly adapted to fire. Trees often exhibit characteristics such as thick bark and the ability to sprout from the root crown. Fire also stimulates new growth in grasses, while killing other species that compete for light and moisture. The extent of prairie within southwest Missouri prior to European-American settlement, estimated at between 25 and 50 percent of the landcover, can be attributed, at least in part, to frequent grass fires that prevented the establishment of woody vegetation. Without the presence of fire or grazing animals, much of the grassland prairie quickly becomes filled with woody invaders.

193. Miller, "Mining," 81–82. Records also indicate that the farm owner permitted mine exploration by Kansas Exploration, Inc., in 1925, and by the Boston Commerce Drilling Company in 1928–1929. ("Lead and Zinc Mine, Potable Water Quality, Newton County National Priorities List of Hazardous Waste Sites," September 30, 2003, File L54, ACF, GWCA.)

194. Thomas B. Nolan, Acting Director, U.S. Geological Survey, to Director, National Park Service, December 8, 1945, File 035, Box 187, CCF, RG 79, NA-CPR.

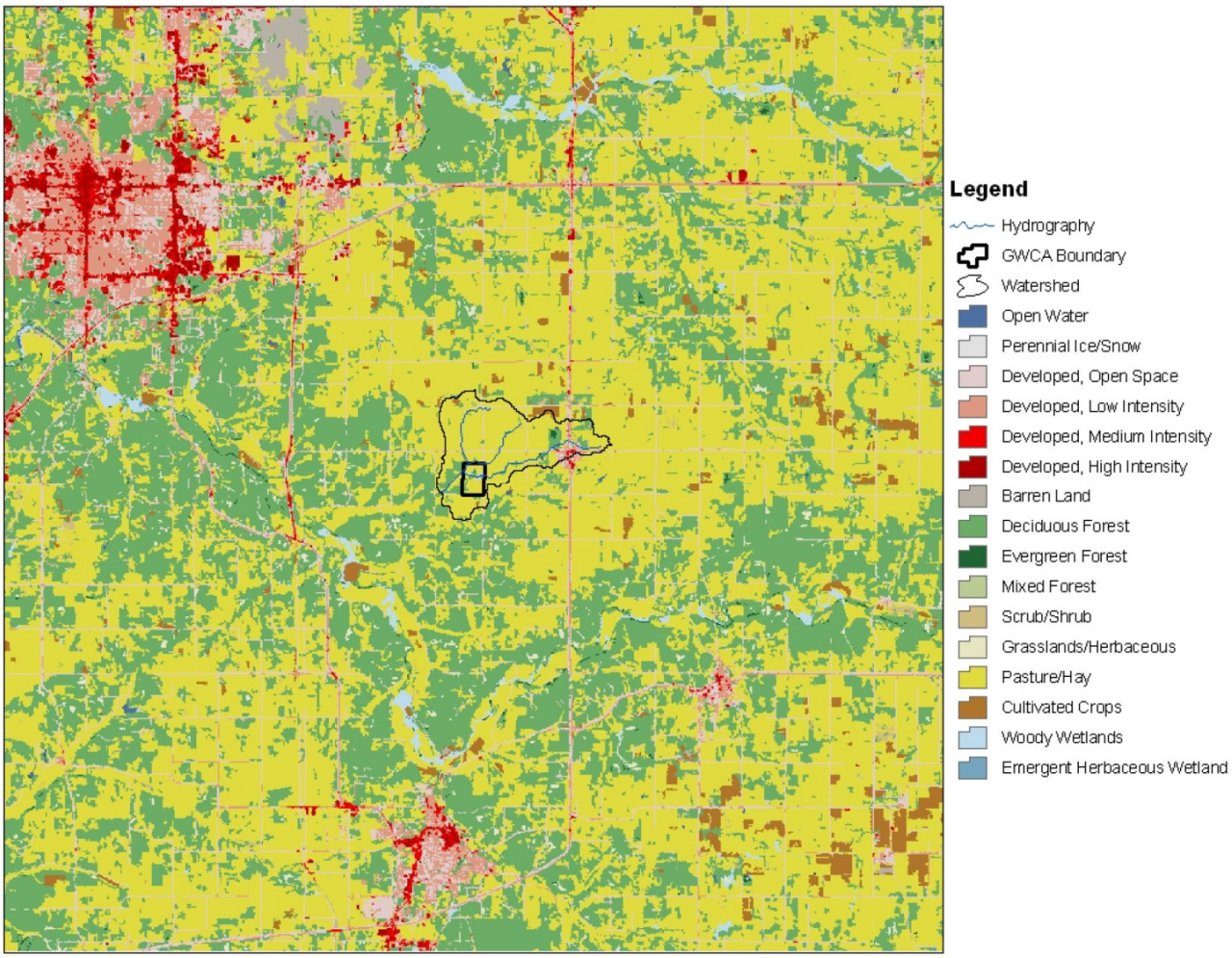


FIGURE 35. Land Cover in the vicinity of the park, circa 2011. Source: Annis et al. George Washington Carver National Monument Natural Resource Condition Assessment, 12.

Prior to European-American settlement, oak-hickory woodlands typically followed stream courses in the form of gallery forests (Figure 36), or occupied drier uplands in the form of savannas, composed of widely-spaced and open grown trees with grassland understories. The fire that contributed to these vegetation communities and compositions can be attributed to natural causes, such as lightning strikes, as well as anthropogenic-generated fire. American Indians are thought to have regularly used fire as a tool to promote the development of prairie and savanna-like conditions, encouraging the growth of grasses and other herbaceous plants used for food and basket-making material, and to attract megafauna for hunting purposes. Maintenance of open expanses of landscape also facilitated travel and prospects important to protect against attack. The resulting grasslands produced the deep, rich, soil profile—well suited to crop production—that later benefitted European-American settlers.

The two types of wooded conditions associated with southwestern Missouri are savanna and mixed woodlands. In both, oaks and hickories are the most prevalent species, comprising as much as 75 percent of the basal area of mature woodlands. Short-leaf pine and many deciduous species are also part of the overall composition of regional forests.



FIGURE 36. Image of a gallery forest at Tallgrass Prairie National Preserve, Chase County, Kansas. Source: Liz Sargent.

Today, regional plant communities differ from those present prior to European-American settlement in several ways. First, where gallery forests once edged stream corridors, floodplain communities are today characterized by young invader species and a dense understory of woody growth. Gallery forests once featured mature oaks, elms, and ashes subtended by an understory of grasses. Today, riparian forests contain a greater percentage of fire intolerant species, and a denser character than that present during the mid-nineteenth century. The extent of woodland cover also exceeds that present at the time of early settlement.

The composition of forest communities has changed due to a variety of factors that include cultivation, which depleted soil fertility and led to erosion; logging that disturbed natural woodland succession; fire suppression; the loss of important native species such as the American chestnut (*Castanea dentata*) and elm (*Ulmus americana*) to introduced pathogens; and the displacement of native species by invasive species.

Few stands of native prairie have survived cultivation. The impacts of agriculture are exhibited in the extent of cool-season exotic grasses and invasive species.

3.1.5 Wildlife

Fauna observed at George Washington Carver National Monument is representative of that found in old fields and disturbed woodlands throughout the Ozark Highlands. Common mammals include the opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), prairie vole (*Microtus ochrogaster*), and hispid cotton rat (*Sigmodon hispidus*).[195] Forty-nine species of birds have been recorded as year-round residents or seasonal visitors within the park.[196] The most common and widely distributed species include the dickcissel (*Spiza americana*), blue jay (*Cyanocitta cristata*), northern cardinal (*Cardinalis cardinalis*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), American crow (*Corvus brachyrhynchos*), downy woodpecker (*Picoides pubescens*), and tufted titmouse (*Baeolophus bicolor*).

The park's water resources and wetland habitats are home to several species of reptiles and amphibians. Common faunal species representative of the region include the American bull frog (*Lithobates catesbeianus*), southern leopard frog (*Lithobates sphenocephalus*), ringneck snake (*Diadophis punctatus*), and three-toed box turtle (*Terrapene carolina triunguis*).[197]

3.1.6 Threatened and Endangered Species

There are no federally endangered or threatened species known to occur within the park, although several state-listed species of special concern have been documented, or are associated with habitats present within the park. Three grassland obligate birds—the dickcissel, eastern meadowlark (*Sturnella magna*), and grasshopper sparrow (*Ammodramus savannar*)—have been recorded at

195. H. W. Robbins, *Inventory of distribution, composition, and relative abundance of mammals at George Washington Carver National Monument* (National Park Service Technical Report, 2005); as summarized in Annis et al., 18.

196. D. G. Peitz, "Bird monitoring at George Washington Carver National Monument, Missouri" (Fort Collins, Colorado: National Park Service, 2009); as summarized in Annis et al., 18.

197. Annis et al., 18.

the park. No forest obligate species have been recorded. The three most frequently observed species of concern and their habitats include the dickcissel (tallgrass prairie or weedy fields), Indigo bunting (*Passerina cyanea*) (brush and low trees of overgrown fields), and Carolina wren (*Thryothorus ludovicianus*) (woodland understory).[198]

Other bird species of concern observed within the park include the northern harrier (*Circus cyaneus*),[199] loggerhead shrike (*Lanius ludovicianus*),[200] and painted bunting (*Passerina ciris*).[201] Species identified by the park as important for monitoring purposes, but which are not associated with state or federal listings, include the northern bobwhite quail (*Colinus virginianus*) and Henslow's sparrow (*Ammodramus henslowii*).

One rare fish species—the Arkansas darter (*Etheostoma cragini*)—was observed within the park during a fish survey conducted in 2003.[202]

The wood frog (*Lithobates sylvaticus*) is the only amphibian identified as a species of concern associated with park habitats, although it has not yet been observed in the park.[203]

The state-endangered spotted skunk (*Spilogale putorius*) is another species that has not been observed within the park, although suitable habitat exists to support it.

One insect of concern, the regal fritillary (*Speyeria idalia*), has been identified within the park. It is associated with tallgrass prairies and wet grassy areas within the central United States.[204]

Plant species of concern noted within the park include the royal catchfly (*Silene regia*),[205] observed in the park during a 2004 survey, and the American beakgrain (*Diarrhena americana*),[206] observed in previous surveys but not during the 2004 survey. There are also five additional species of concern associated with park habitats that have not as yet been observed during survey efforts. They include tinytim (*Geocarpon minimum)*,[207] prairie false foxglove (*Agalinis heterophylla*),[208] earlyleaf brome (*Bromus latiglumis)*,[209] graceful sedge (*Carex gracillima*),[210] and velvety tick trefoil (*Desmodium viridiflorum*).[211]

3.1.7 Planning and Zoning

The park is surrounded by privately owned land that is predominantly rural and agricultural in nature. This provides an appropriate setting for the park.

In 1995, however, the park began to grow concerned about development in the region and

198. Ibid., 51–52.
199. Identified at the state level as S2E (imperiled); and at the federal level as G3G4 C (vulnerable, apparently secure, and a candidate for listing).
200. Identified at the state level as S2 (imperiled); and at the federal level as G4 (apparently secure).
201. Identified at the state level as S3 (vulnerable); and at the federal level as G5 (secure).
202. Identified at the state level as S3S4 (vulnerable to apparently secure); and at the federal level as G5 (secure).
203. Identified at the state level as S3 (vulnerable); and at the federal level as G3 (vulnerable).
204. Identified at the state level as S3 (vulnerable); and at the federal level as G3 (vulnerable).
205. Identified at the state level as S1 (critically imperiled); and at the federal level as G4G5 (apparently secure to secure).
206. Identified at the state level as S1 (critically imperiled); and at the federal level as G4G5 (apparently secure to secure).
207. Identified at the state level as E (endangered); and at the federal level as T (threatened).
208. Identified at the state level as S1 (critically imperiled); and at the federal level as G4G5 (apparently secure to secure).
209. Identified at the state level as S3 (vulnerable); and at the federal level as G5 (secure).
210. Identified at the state level as S1 (critically imperiled); and at the federal level as G5 (secure).
211. Identified at the state level as S1 (critically imperiled); and at the federal level as G5 (secure).

its potential impact on the landscape setting. The 1995 Superintendent's annual report notes:

> The threat of inappropriate use of land around and adjacent to George Washington Carver National Monument is becoming more prevalent, due to the fact that land use is changing in Southwestern Missouri. Developers are buying up the land and building single family homes. More than 50 such homes have been planned for an area three miles south of George Washington Carver National Monument. Since there is no zoning ordinance in place in Newton County and land owners are not required to get a permit to develop their land, I am very concerned about how the changing land use will impact the historic scene surrounding the park.[212]

Although it has been twenty years since this concern was raised, few residential subdivisions have been developed within view of the park. This remains a concern for the future.

3.1.8 Demographics

In 2010, the United States census recorded a population of 902 for the town of Diamond, Missouri, an increase of 11.6 percent over the 2000 census. Diamond falls within the Joplin, Missouri, Metropolitan Statistical Area. The population of Joplin at the 2010 census totaled 50,150, while the populations of Newton and Jasper counties totaled 58114 and 117,404 respectively. The population of the city of Joplin has declined since a devastating tornado destroyed large developed areas of the city on May 22, 2011.

Based on review of employment statistics, most of Newton County residents work in the health care and social assistance realm, followed by the manufacturing and retail sectors of the economy. Each of these areas of employment provides jobs for between 10 and 18 percent of the population. Local government, accommodation and food service, construction, and farm employment each employ between 6 and 8 percent of the population. Historically, farming and mining were more important to the local economy. Today, beef cattle, wheat, and soybeans are the chief focus of the region's remaining farms.[213] Agricultural land uses remain prevalent within the area that surrounds the park. Longhorn and other beef cattle are raised on farms in close proximity to the park.

3.1.9 Climate

George Washington Carver National Monument is located in a temperate climatic zone with weather conditions ranging from extreme heat and humidity in the summer months to cold, icy conditions in the winter. More than half of the region's annual 41 inches of precipitation—around 25 inches—falls between April and September, which encompasses the growing season for most crops cultivated within the county.[214]

3.1.10 Regional Related Attractions

There are several local attractions that offer complementary programming to George Washington Carver National Monument. These include the Newton County Historical Museum, Newtonia Battlefield, Battle of Carthage Civil War Museum, Wildcat Glades Conservation and Audubon Center (Joplin), George A. Spiva Center for the Arts (Joplin), Joplin Museum Complex (Joplin), Cunningham Park (Joplin), Big Spring Park (Neosho), Stage Stop Campground (Neosho), Morse Park (Neosho), Fort Crowder Conservation Area (Neosho), Neosho Bicentennial Park (Neosho), Diamond Grove Prairie Conservation Area (Diamond), Walter Woods Conservation Area (Joplin), and Neosho National Fish Hatchery (Neosho). Two of these sites are particularly relevant to the programs and resources available at the park:

Wildcat Glades Conservation and Audubon Center. The Wildcat Glades Conservation and Audubon Center, located in Wildcat Park within the city of Joplin, is associated with some of the last remaining chert glades, a globally unique

212. Superintendent's Annual Report, 1995, 2.
213. Aldrich, 3.
214. Ibid., 2.

habitat found only in this area. The center is also crossed by the biologically rich Shoal Creek stream valley. It protects habitat important to migratory birds and other wildlife. The center offers hands-on environmental education programs and activities, focusing especially on children. The center uses outdoor learning stations along its trail systems, as well as indoor classrooms for its programming.

Diamond Grove Prairie Conservation Area. Diamond Grove Prairie Conservation Area is one of the largest tracts of tallgrass prairie remaining in southwestern Missouri. Land surveyors in the 1840s described it as "rich rolling prairie;" Diamond Grove remains similar in character today. The area is dominated by native grasses such as prairie dropseed (*Sporobolus heterolepis*), big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and Indian grass (*Sorghastrum nutans*). An array of wildflowers such as Indian paintbrush (*Castilleja* sp.), blazing star (*Liatris* sp.), lead plant (*Amorpha caescens*), compass plant (*Silphium laciniatum*), and royal catchfly (*Silene regia*) are visible in the flowering season.

Grassland bird species are also prevalent. Visitors can often view the uncommon Henslow's sparrow, short-eared owls (*Asio flammeus*), and northern harriers. Deer (*Odocoileus virginianus*), quail (*Coturnix coturnix*), and rabbit are common in the brushy fence rows and prairie draws. The conservation area is maintained through prescribed burning to stimulate native prairie plants and control woody encroachment. Mechanical thinning is used to manage a 35-acre woodland within the conservation area that approximates a natural savanna community. Recreational opportunities for visitors include hunting, hiking, bird watching, and outdoor photography.

3.1.11 Park Stakeholders and Constituents

George Washington Carver National Monument has a variety of organizations, public agencies, colleges and universities, groups, corporations, individuals, and tribes involved with activities at the park. The Carver Birthplace Association (CBA), a key partner for the park, operates the visitor center gift shop and serves as the park's friends group through a fund-raising agreement. The park has a very supportive Volunteer-in-Park program, with approximately 250 to 300 volunteers assisting the park and CBA each year.

3.2 Overall Park Composition

See Figure 37, Existing Conditions map.

The 240-acre park is edged to the east by Carver Road, to the south by Elder Road, and to the west and north by privately-held parcels. The surrounding landscape is generally agrarian and pastoral, composed of cultivated fields and pastures, with modest residential development occurring along road corridors. George Washington Carver National Monument encompasses the entire quarter section acquired by Moses Carver during the mid-nineteenth century for farming purposes.

The park property occupies a relatively level upland site, cut by the stream corridors of Carver, Williams, and Harkins branches. Although the landscape was once primarily in agricultural production, much of the land is managed today as restored native grassland prairie; successional woodland is present along the stream corridors and other low-lying lands.

Visitors arrive at the park via Carver Road. A park identity sign edged by brick piers, planting beds, and a gate mark the entrance. An asphalt drive leads to the park's core visitor use area, which is composed of the entrance road, parking area, visitor center, picnic area, and a mile-long interpretive trail. Parking edges the entrance road to either side; near the visitor center, the drive forms a tear-drop-shaped loop and a drop-off area. The park entrance road is also edged to the north by a grove of mature shade trees. A picnic area is set within the grove. A second picnic area edges the road to the south near the visitor center.

Connecting to the loop is a service drive that leads to the park's maintenance or utility area, located adjacent to and south of the visitor center.

Ornamental plantings edge the visitor center to help screen the work yard and parking lot of the adjacent maintenance area. Also screened from view of the primary visitor use area is a complex of three buildings that face Carver Road to the south of the park entrance. The complex, which features a separate entrance onto Carver Road, is currently used for storage, but was originally constructed to support park housing needs. Buildings within the complex have also served as park administrative offices. The structures were formally eliminated from the National Park Service housing inventory in 2009, and approved for demolition and removal from park land. A small storage shed and yard are located at the southern end of the complex.

Visitors generally begin their tour of the park in the visitor center, which houses a rich array of exhibits about the life of George Washington Carver, as well as park administrative functions.

After leaving the visitor center, many visitors elect to follow the park's pedestrian interpretive tour route, composed of the mile-long Carver Trail that provides access to many of the features described by Dr. Carver in his recollections of his boyhood on the farm.

Polished granite stones etched with quotations from Dr. Carver edge a walk that links the visitor center and the Carver Trail trailhead. The quote stones are set within beds of ornamental roses. Near the trailhead, located to the north of the visitor center, visitors encounter several commemorative plaques and exhibits, such as the dedication plaque, memorial plaque, and birthplace cabin exhibit. A wayside exhibit interprets the purported location of the cabin where George Washington Carver was born, referencing the wooden structure built by the park to mark the outline of the birthplace cabin.

Beyond the cabin site, the trail enters the wooded Carver Branch stream corridor. The trail traverses the sloped terrain as it falls away toward the stream corridor in a looping switchback. The trail levels out near a spring that feeds Carver Branch. George Washington Carver is known to have explored the environs of the spring as a boy and drawn water here for farm residents. To mark the site, the Boy Carver statue, sculpted by notable artist Robert Amendola, was placed along the trail near the spring in 1960.

The trail continues on through the riparian woodland associated with Carver Branch, crossing the stream via a steel bridge before reaching Williams Pond, a constructed water feature established in the 1930s by the Shartel family that owned the property between 1913 and 1948. The Contemplative Loop Trail, a spur of the Carver Trail, circumnavigates the pond. Quote stones like those found near the visitor center edge the Contemplative Loop Trail. The two trails rejoin across the dam of Williams Pond. The Carver Trail then continues in a westerly direction to a clearing in the woods at the edge of an open field. Set within the clearing is a dwelling precinct marked by a house built by Moses Carver circa 1881 set within a grove of walnut trees and surrounded by split-rail fence. The house was relocated to this site by the Shartel family from its original location south of Carver Branch in 1916. The National Park Service interprets nineteenth century life on the farm at the cabin and a nearby demonstration kitchen garden. Views are afforded from the dwelling precinct into adjacent fields, now managed as grassland prairie.

Beyond the house, the trail continues south, crossing Williams Branch and Carver Branch in quick succession. A second steel bridge and elevated wooden boardwalk system conveys the trail across low-lying and inundated terrain. As the trail emerges from the stream valley, it enters open grasslands. Edging the trail for a short distance is a row of walnut trees planted by the National Park Service in the 1950s to recall the hedgerows planted by Moses Carver during the nineteenth century. The row of walnut trees leads to a small family cemetery enclosed within a stacked stone wall. Moses and Susan Carver, as well as other family and community members, are buried in the cemetery. The stone wall was reconstructed by the National Park Service in 1954 based on oral accounts and archeological investigations.

The trail continues through the grassland prairie, traveling in a northeasterly direction to return to the visitor center. A bust of George Washington

Carver, set within a small amphitheater-shaped seating area, edges the trail near the visitor center. An audio recording of Dr. Carver reading a poem can be activated by visitors near the bust. Beyond the bust, visitors return to the visitor center. From the visitor center environs, long views across the restored prairie are afforded to the southwest.[215]

Much of the remainder of the park is managed as restored native grassland prairie. A wooded corridor edges the park's third stream—Harkins Branch—in the northwestern corner of the property, while the site of a former lead and zinc mine, currently characterized by highly disturbed woodlands and grassy fields, occupies the park's southwest corner.

In its character and configuration, the park expresses decades of work designed to appropriately memorialize George Washington Carver. The National Park Service determined that the most suitable way to memorialize Dr. Carver was to keep the memorial landscape simple, spare, and dignified. Proposals to reconstruct a slave cabin and to erect more elaborate statuary were rejected in favor of simple and meaningful gestures. Park planners have also insisted that the landscape features known to have been important to George Washington Carver during his youth be preserved in such a way as to help convey the park story. Interpretive waysides placed along the Carver Trail introduce visitors to several of the features of the property known to George Washington Carver: native plants, the spring, the woods, and the agricultural landscape. Rose bushes have been planted in front of the visitor center to remind visitors of George Washington Carver's love of flowers, but have been kept simple and minimal in size and expression. This "minimalist" approach is intentional and design feature of the way the park has been laid out and developed. The park's ongoing challenge for managing the monument is to ensure that the natural landscape does not overwhelm the memorial site, and that the memorial site does not overwhelm elements of the natural environment that had been formative for Dr. Carver as a child.[216] The interpretive message conveyed throughout the park draws on site features to reflect Dr. Carver's religious ideas, his love of art and music, and his love of plants and nature.[217]

215. Ibid., 4-3, 4-4.
216. Krahe and Catton, 279–282.
217. Ibid.

Environmental Assessment and Cultural Landscape Report

for

George Washington Carver National Monument

Prepared by JMA, a CCRG company

Drawing No. GWCA 397 127384

PMIS No. _____

Legend

- GWCA Boundary
- 10-foot contour
- 1-foot contour
- Stream
- Spring
- Paved road
- Gravel road
- Mowed path
- Trail
- Building
- Post and board fence
- Post and wire fence
- Split-rail (worm) fence
- Woodland
- Utility line
- Gate

Sources:

National Park Service, Cultural Resource GIS office, CLI GIS conversion project, 2013.

Contours created from 7.5 minute digital elevation data, USGS, 1998, Newton County, MO (published Rolla, MO).

Boundary marker
Carver Road
Brick entrance piers
Superintendent's Residence
Historian's Residence
Boundary marker
Four-Unit Seasonal Housing Quarters
Storage shed and yard
Carver Branch
Picnic Area
Seasonal trail
Walnut grove
Parking
Williams springhouse foundation
Contemplative Loop Trail
Boy Carver Statue
Drainage swale
Williams Pond
Earthen dam
Demonstration gardens
Moses Carver House
Birthplace exhibit structure
Carver Spring
Maintenance Building
Visitor Center
Carver Bust
Elder Road
Former zinc mine
Compost pile
Williams Branch
Carver Trail
Persimmon grove
Carver Cemetery
Replanted walnut fence row
Harkins Branch
Carver Branch
Concrete debris
Dry Branch
Slash pile

This drawing was prepared to illustrate the Cultural Landscape Report/Environmental Assessment for George Washington Carver National Monument in 2015. This drawing is provided to illustrate existing site conditions, and is not intended to serve as a design or construction document.

0' 360' 720'

SCALE 1" = 360'

Feb 04, 2015 - 10:43am G:\PROJECTS\George WC CLR-EA\Planning\AutoCAD\Active\GWCA_Base_20140214.dwg

DRAFT

Figure 37.
Existing Conditions

3.3 Documentation and Assessment by Landscape Characteristic

The section that follows identifies each of the discrete physical resources associated with George Washington Carver National Monument. The features are arranged by landscape characteristic. For each landscape characteristic section, an introductory paragraph describes the range of features present within the park, and identifies which of these contribute to the significance of the park landscape. The introductory paragraph is followed by a physical description of each feature, and an indication of the feature's origin and subsequent evolution. For each landscape characteristic, any features known to have been present historically that are no longer extant are also discussed. An inventory of the contributing, non-contributing, and missing features occurs at the end of each landscape characteristic section.

3.3.1 Natural Systems and Features

George Washington Carver National Monument currently contains a variety of natural systems and features, ranging from water resources to native plant communities; many of these were known to George Washington Carver. In fact, natural features and systems are one of the primary characteristics of the park landscape that link George Washington Carver's memories to his birthplace. As Carver later noted:

> My home was near Neosho, Newton County, Missouri, where I remained until I was about 9 years old. My body was very feeble and it was a constant warfare between life and death to see who would gain the mastery.
>
> From a child I had an inordinate desire for knowledge, and especially music, painting, flowers, and the sciences, algebra being one of my favorite studies.
>
> Day after day, I spent in the woods alone in order to collect my floral beauties, and put them in my little garden I had hidden in brush not far from the house, as it was considered foolishness in that neighborhood to waste time on flowers.
>
> And many are the tears I have shed because I would break the roots or flowers of some of my pets while removing them from the ground, and strange to say all sorts of vegetation seemed to thrive under my touch until I was styled the plant doctor, and plants from all over the country would be brought to me for treatment. At this time, I had never heard of botany and could scarcely read. Rocks had an equal fascination for me and many are the basketful that I have been compelled to remove from the outside chimney corner of that old log house, with the injunction to throw them downhill, I obeyed but picked up the choicest ones and hid them in another place, and somehow that same chimney corner would, in a few days or weeks, be running over again to suffer the same fate. I have some of the specimens in my collection now and consider them the choicest of the lot.[218]

Taken together, the natural systems and features present within the park include three perennial streams—Carver, Harkins, and Williams branches—as well as Carver and Williams springs, the intermittent Dry Branch stream corridor, riparian woodlands, and native grassland prairie. The three stream corridors, along with Carver Spring and Dry Branch, survive with integrity from the nineteenth century period of significance. Williams Spring has been inundated by a pond created during the early twentieth century, and is no longer in evidence within the landscape except when water levels in the pond are low. The native grassland prairie is a plant community that has been actively managed by the National Park Service since the 1980s to reflect pre-European-American settlement, and does not contribute to the historic park landscape. Aspects of the riparian woodland that edges Carver, Williams, and Harkins branches reflects nineteenth century conditions. With diminished integrity, these woodlands also contribute to the significance of the park landscape.

218 . George Washington Carver, as quoted in Toogood, 46–47.

Water Resources. As noted above, the water resources associated with the park include Carver, Williams, and Harkins branches, Carver and Williams springs, and Dry Branch. Carver Branch is one of the primary features of the park's interpretive landscape and the focus of the Carver Trail that affords interpretation of George Washington Carver's life on the farm. Carver Branch flows through the center of the park. Carver Spring empties into the branch north of the visitor center. As an adult, George Washington Carver recalled drawing water from the spring. The Boy Carver statue is sited in close proximity to this important feature. Williams Branch empties into Carver Branch within the park, and is also a feature of the Carver Trail. Harkins Branch is located in the northwestern corner of the park, and presently little interpreted, although it is edged by high quality woodlands. Dry Branch (Figure 38) is located in the southwestern corner of the park, and also not an important element of the visitor experience.

Carver Branch. Carver Branch traverses the park from east to west, forming a central wooded corridor. Both Williams and Harkins branches empty into Carver Branch, Williams Branch within the park, and Harkins Branch just outside the park boundary to the west. Carver Branch eventually empties into Shoal Creek northwest of the park.

The Carver Trail passes through this corridor for much of its length (Figure 39). The source of Carver Branch is located a short distance to the east of the park. Carver Branch is classified as a losing stream by the state of Missouri. Data collected during several efforts conducted between 2003 and 2010 indicates that twenty-two fish species are present within park waters. The species present, which are typical of small headwater streams, include southern redbelly dace (*Chrosomus erythrogaster*), central stoneroller (*Campostoma anomalum*), and green sunfish (*Lepomis cyanellus*).[219] As noted above, the Arkansas darter, a species of conservation concern, has been observed in Carver Branch.[220] The grass carp (*Ctenopharyngodon idella*), an introduced species potentially detrimental to native species, may be present within park waters.[221]

The park has monitored the water quality of Carver Branch and Spring since discovery of chemical and fecal pollutants and high mercury levels in 1983, and has worked to address runoff and other source problems upstream.[222]

Although the watershed of this stream exists in a primarily agricultural landscape, the water quality and physical habitat is generally good. It is possible that there is mild impairment from threats outside of the park boundaries.[223] Land use changes on nearby areas have the potential to impact this resource.[224]

219. B. G. Justus and J. C. Peterson, *The fishes of George Washington Carver National Monument, Missouri* (Reston, Virginia: U.S. Geological Survey, 2005).
220. Missouri Natural Heritage Program 2010.
221. Annis et al., 18.
222. Superintendent's Annual Report, 1983.
223. D. E. Bowles, "Aquatic invertebrate monitoring at George Washington Carver National Monument: 2005-2007" (Fort Collins, Colorado: National Park Service, 2009), in Annis et al., 18.
224. Annis et al., 89–90.



FIGURE 38. Streams within the park. Source: Annis et al. George Washington Carver National Monument Natural Resource Condition Assessment, 9.



FIGURE 39. Carver Branch and the riparian corridor.

Harkins Branch. Harkins Branch, located in the northwestern corner of the park, is larger than Carver Branch in terms of discharge but is a tributary. The water quality of the branch is considered to be good. The fish communities within Harkins Branch are generally diverse and healthy. As with Carver Branch, the cardinal shiner (*Luxilus cardinalis*) and the stippled darter (*Etheostoma punctulatum*) are present, and may be of special interest because they are endemic to the Ozark Plateau.[225] The Arkansas darter is also known to be present in Harkins Branch.[226] Harkins Branch shows greater stream bank instability than the other two streams, and only a small segment is contained within the park, so impacts from off-site pollutants may be a concern.

Williams Branch. This stream flows into Carver Branch in the central part of the park, with Williams Spring serving as its origin (Figure 40).[227] Overall water quality is similar to Carver Branch, and similar fish species are known to inhabit the branch. Carver and Williams branches share a floodplain, and are similarly affected by surrounding agricultural activities.



FIGURE 40. Williams Branch feeds into Carver Branch.

Dry Branch is an intermittent stream channel located near Elder Road in the southwestern corner of the park (Figure 41). The channel is watered during the spring when groundwater levels rise in response to the rainy season, before summer heat and drought contribute to drying trends.



FIGURE 41. Dry Branch, an intermittent stream in the southwest corner of the park.

225. Justus and Peterson.
226. H. R. Dodd, D .E. Bowles, S. K. Mueller, and M. K. Clark, *Fish community monitoring at George Washington Carver: 2006-2007, 2010 status report* (Fort Collins, Colorado: National Park Service, 2011).
227. Cultural Landscape Inventory, 2010.

Overland flow of storm water has formed a drainage swale in the field south of the visitor center. This swale has likely been present since Carver ownership of the farm. It is not known to what degree farming has degraded the swale by contributing to erosion.

Springs are the outflow of subterranean streams. Two springs are known to exist on the property. These include Carver and Williams springs.

Williams Spring is a naturally-occurring water source that was known to the Carvers during their ownership of the farm. The spring is currently located under and inundated by Williams Pond. The pond, a constructed water feature that was added after Carver ownership, may have affected the hydrology of the spring.

Carver Spring remains a free-flowing water source. It forms a very short spring branch that flows into Carver Branch. A third spring apparently associated with Harkins Branch based on historic accounts has not been relocated.

The water resources present within the park are known to have been important, even critical, landscape elements of the Moses Carver farm. Carver appears to have settled this land based as much on the level terrain and fertile soils as on the abundant water supply. Carver is known to have sited his farmstead in close proximity to the two springs and Carver Branch. These streams and springs were an integral part of the farm, and well known to George Washington Carver as a boy. Moses Carver also likely chose sites for cultivation that were near, but not adjacent to, these water sources, where timber suggested the ground was well watered.

George Washington Carver is thought to have been responsible for bringing water to the Carver cabin from the Carver Spring during his childhood on the farm. The spring is one of the cultural landscape features that can be connected to George Washington Carver's direct knowledge of the farm.

Today, the stream corridors and the Carver Spring are generally more wooded than they were during the nineteenth century, and the site has also been marked with commemorative features such as the Boy Carver statue, Carver Trail and associated wayside exhibits, and landscaping. Several of these features were constructed during the park establishment period of significance.

Another important change to water resources since the nineteenth century has been the addition of Williams Pond, created through impoundment of the stream corridor with a dam. The pond was in place prior to park establishment, but was enlarged by the National Park Service in 1978–1979 when the dam required replacement. This led to the inundation of Williams Spring. In 1977, U.S. Fish and Wildlife stocked the pond with fifty rainbow trout.[228] The pond is also known to have been stocked by the park, in cooperation with the Missouri State Fisheries, in 1984.[229]

Water quality concerns associated with the park's streams (chemical and fecal pollutants) and springs (high mercury levels) were identified by Missouri Southern State University students in 1983. In response, the National Park Service initiated a three-year water resource quality study.[230] In 1984, the park's water quality was found not to meet state standards. In investigating the source of the pollution, it was determined that the city of Diamond was not maintaining adequate sewage lagoons for its treatment facilities.[231]

The park's water resources, with the exception of Williams Pond, and the currently inundated condition of Williams Spring, survive from the nineteenth century period of significance, with diminished integrity of setting, and contribute to the significance of the park.

Plant Communities. Plant communities associated with the park fall into three broad categories: ornamental and other cultural

228. Superintendent's Annual Report, 1977.
229. Superintendent's Annual Report, 1984.
230. Superintendent's Annual Reports, 1983, 1984.
231. Superintendent's Annual Reports, 1984, 1985.

vegetation associated with the park's developed core and addressed below under the Cultural Vegetation section, riparian and upland successional woodland communities, and restored native grassland prairie. The prairie and woodland communities are further delineated based on species compositions derived from a combination of soil types, available moisture, solar aspect, previous land use, and stand age. As noted in the park vegetation map (Figure 42) plant communities can be more specifically identified as: bottomland oak-hardwood forest; bottomland successional deciduous sparse woodland and shrubland; upland prairie and savanna (wooded); upland successional deciduous sparse woodland and shrubland; and upland successional and disturbance grassland. There are also two wet prairie areas denoted as bottomland successional herbaceous vegetation.[232]

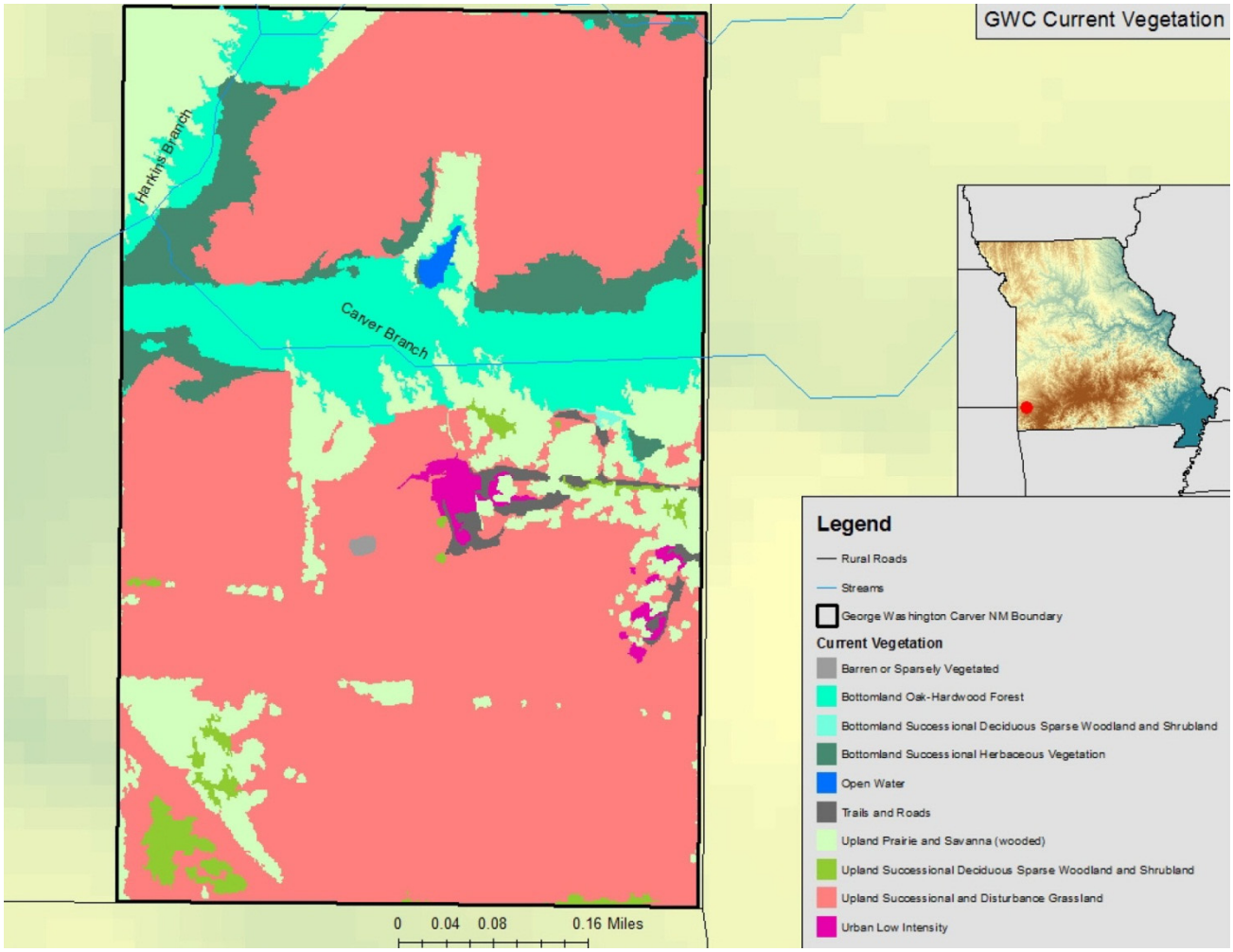


FIGURE 42. Vegetation communities within the park. Source: Annis et al. George Washington Carver National Monument Natural Resource Condition Assessment, 48.

232. Michael P. Burfield and Charles H. Nilon, *George Washington Carver National Monument: Integrated Vegetation Management Recommendations* (Columbia, Missouri: University of Missouri Department of Fisheries and Wildlife Sciences, June 2011), 9.

These communities have developed on the site of former croplands or where logging has removed woodland cover at some point in time. Although portions of the current woodlands may never have been plowed due to soil wetness or steep slopes not suited to crop production, the woods are likely to have been used to graze animals during the nineteenth century, and trees have been removed for many purposes. There are no woodlands or prairie communities that survive from Carver ownership of the farm, although in 1942 the Shartel's described the property as featuring enormous walnut and elm trees—most of which were there when Dr. Carver was born."[233] Most of the extant woodlands have arisen through secondary succession and are less than 100 years old.

The extant plant communities at George Washington Carver National Monument generally reflect the efforts conducted by the National Park Service since the 1980s to restore native grassland prairie and to enhance the health of native woodland communities. These two landcover types experienced extensive disturbance beginning in the second quarter of the nineteenth century, due to European-American settlement and associated agricultural use of the land. Native grassland prairie extends over the majority of the former field and pastureland associated with the Carver farm. Although prairie is known to have been present when Moses Carver settled the farm, some was cultivated, while much of the remainder served as pasturage for livestock. Despite a history of crop production, the remnants of mima mounds, common on native prairies such as Diamond Prairie nearby, are still evident in grasslands across much of the park.[234]

Similarly, the woodlands conveyed a more open-grown appearance during the nineteenth century due to such influences as fire and grazing. Thus the plant communities present today little resemble those present during the Carver period, and have changed to a great degree since the early park development period of significance.

Woodlands. Based on previous natural resource studies, the park's woodlands are generally characterized as mesic riverfront forest undergoing succession following widespread disturbance prior to National Park Service acquisition (Figure 43).[235] The majority of the park's woodlands generally follow the Harkins and Carver branch stream valleys, but woodland is also present along portions of the park boundary and within the former lead mine site parcel. Past cultural activities, primarily farming, grazing, and timbering, as well as the introduction of invasive exotic plant and animal species, have served to degrade the quality and integrity of the park's woodland vegetation. The woodlands associated with the remediated mine tailings site are the most highly disturbed, while the woodlands in the park's northwest corner that follow Harkins Branch are in the best condition. This woodland was historically white oak/burr oak-pecan, floodplain forest (small drainages).



FIGURE 43. Woodland in the Carver Branch stream valley.

The woodlands that relate directly to the stream corridors—Harkins Woods and Carver Woods—together cover approximately 61 acres of the park. Dominant species include hackberry (*Celtis occidentalis*), American elm (*Ulmus americana*),

233 Stratton Shartel to Dewey Short, Member of Congress, 6 April 1942, Folder 373, Dewey Short Papers, SHS-MO.

234. Mima mounds are low, flattened, circular to oval, domelike, natural mounds that are composed of loose, unstratified, often gravelly sediment that is an overthickened A horizon.

235. Harrington et al.

black walnut (*Juglans nigra*), and slippery elm (*Ulmus rubra*). Sycamore (*Platanus occidentalis*) and green ash (*Fraxinus pennsylvanica*) are also important species within these plant communities. Oaks and hickories are important components of the riparian and upland forests of the region. The highest density of oaks, particularly burr oak (*Quercus macrocarpa*), is found within the western portion of Carver Branch.[236]

These woodland communities convey a species composition that has been described as ruderal, or in the early stages of succession, by Diamond et al., as follows:

> Early successional and invasive species are characteristic of this type. Black walnut (*Juglans nigra*), common hackberry (*Celtis occidentalis*), slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*), Osage orange (M*aclura pomifera*), and honeylocust (*Gleditsia triacanthos*) are found throughout. Coralberry (*Symphoricarpos orbiculatus*) and multiflora rose (*Rosa multiflora*) are common shrubs, while Virginia creeper (*Pathenocissu quinquefolia*) and poison ivy (*Toxicodendron radicans*) are common vines. Japanese honeysuckle (*Lonicera japonica*) formed a mat on the forest floor in some locations, and other non-native invasive species such as winter creeper (*Euonymus fortunei*), bromes (*Bromus tectorum, B. arvensis*), ground ivy (*Glechoma hederacea*), and tall fescue (*Schedonorus phoenix*) have established colonies characterized as the locally dominant ground flora. Communities along Carver Creek and Williams Branch in the central part of the park contain more large trees than other areas. Sycamore (*Platanus occidentalis*) forms a gallery of large trees at water's edge in some places. Succession in this area may lead to more mature forests that fit within the National Vegetation Classification system as *Fraxinus pennsylvanica – Celtis* spp.-*Quercus* spp.-*Platanus occidentalis* Bottomland Forest (CEGL002410) over the next few decades. Communities in the southwest portion of the park appear more disturbed with fewer large trees and a more open canopy versus other woodlands, and Eastern red cedar (*Juniperus virginiana*) is more common.[237]

Additional woody growth areas are identified as ruderal shrubland by Diamond et al., and described as follows:

> This shrubland is dominated by weedy and early successional species such as Osage orange, honeylocust (*Gleditsia triacanthos*), hortulan plum species (*Prunus hortulana*), and Pennsylvania blackberry (*Rubus pensilvanicus*). Non-native tall fescue (*Schedonorus phoenix*) together with annual and short-lived perennial grasses and forbs such as field brome (*Bromus arvensis*) and Canada germander (*Teucrium canadense*) are common.[238]

According to the 1841 General Land Office survey notes for Section 7, which includes the park, the property where Moses Carver established a farm circa 1838 was composed almost entirely of native prairie and savanna.[239] Prairie was indicated as the dominant land cover, with only the extreme southwestern corner of the section in timber, including post oak, black oak, blackjack oak, and hickory.[240] It has also been estimated that a gallery forest approximately thirty feet wide edged Carver and Harkins branches to either side prior to settlement.[241] Wetter prairie likely edged upland drainageways, while the lower lying drainageways were probably wooded.[242]

236. C. C. Young, S. A. Leis, and D. G. Peitz, *Vegetation Management Alternatives for George Washington Carver National Monument* (Republic, Missouri: Heartland Natural Resource Monitoring Program, 2010).
237. Diamond et al., 19–20.
238. Ibid., 26–27.
239. Walter A. Schroeder, *Presettlement Prairie of Missouri* (Jefferson City, Missouri: Department of Conservation, 1981).
240. Harrington et al., 55.
241. J. R. Jackson, *1985 Prairie Restoration Action Plan, George Washington Carver National Monument* (National Park Service, 1984).
242. T. A. Nigh and W. A. Schroeder, *Atlas of Missouri Ecoregions* (Jefferson City, Missouri: Missouri Department of Conservation, 2002).

Other published sources describe Newton County as potentially two-thirds wooded, with bands of oak/hickory and short-leaf pine edging stream corridors and topping hills. The extent of wooded area likely fluctuated in response to factors such as precipitation levels and fire frequency. Regular burning, which occurred naturally from sources such as lightning, and through the deliberate actions of American Indians, also helped to maintain a relatively clear understory within wooded areas.[243]

The woodlands, primarily described as savanna, were likely oak-hickory forests composed of a mosaic of associations depending on soil moisture. Species most frequently encountered in upland areas would have included black oak, black hickory, Eastern red cedar, American and slippery elm, post oak, blackjack oak, mockernut hickory, and flowering dogwood. Moister ground supported sugar maple, chinquapin oak, red oak, shumards oak, and black oak. Bottomlands featured hackberry, American elm, Ohio buckeye, bitternut, black maple, basswood, slippery elm, black walnut, red maple, green ash, sycamore, and chinquapin oak.[244]

The Carvers likely experienced a quickly changing landscape. By the time Moses arrived, fire suppression would have begun, as Euro-Americans considered fire to be a destructive force. As a result, the species composition and structure of both prairie and woodlands would have quickly changed, with woody species beginning to take hold within the prairies, and understory growth emerging in the gallery forests.[245] The Moses Carver farm would also have an effect on the native woodlands, as the family harvested timber to build their cabins and fence rails, and girdled trees to make way for fields in the stream bottoms. Certain species would have been preferred, and thus harvested first. For examples, short leaf pine (*Pinus echinata*) would have been a preferred tree for cabin building, followed by white and burr oak. Hackberry would have been preferred for fence rails.[246] Foraging livestock likely influenced the unmanaged areas. Foraging swine tend to favor acorns, hickory, and walnuts, while cattle prefer grass species like big bluestem. This would have diminished the regenerative ability of oak and hickory species, and lowered the diversity of the plant communities, also favoring the emergence of species not popular with foraging livestock, such as aggressive and thorn-bearing species. Unimproved prairie land was likely used as a source of hay. Bottomland grasses and sedges were also fed to stock during winter.[247]

Today, the woodlands contain many fire intolerant species that would not have been present historically, and a much denser understory. Fire suppression and the removal of grazing animals from the landscape has affected species composition and led to a denser stand of trees and shrubs.

The successional woodland, while more extensive in land area than that present during both the Carver period and the early park establishment period, and with a composition of species that is altered due to several factors, nonetheless contributes as an example of gallery forest linked to the site's hydrology and landform and topography. These woodlands, however, have highly diminished integrity.

Native Grassland Prairie. Restored prairie covers more than 130 acres of the park. This vegetation community is classified by Diamond et al. as Restored Tallgrass Prairie, dominated by little bluestem and Indian grass. Present-day land cover management activities target a return to pre-settlement grassland conditions, rather than the agricultural stands that were present during the mid- to late-nineteenth century. The restoration areas, which contained few, if any, patches of remnant prairie at the time the program was initiated in 1982, are located on the former pasture and cropfields that supported cultivation of non-native and annual plant species

243. Harrington et al., 47.
244. J. R. Jackson, *1985 Prairie Restoration Action Plan, George Washington Carver National Monument* (National Park Service, 1984).
245. Ibid., 62.
246. Ibid.
247. Ibid.

during the Carver and Shartel periods of ownership (Figure 44).[248]



FIGURE 44. Restored prairie in the western portion of the park.

The present prairie community is described in Diamond et al. as follows:

> This grassland community is usually dominated by native tallgrass prairie species such as big bluestem (*Andropogon gerardii*), Indiangrass (*Sorghastrum nutans*), and little bluestem (*Schizachyrium scoparium*). Restoration efforts have not been uniformly successful, and in some patches, usually <500 square meters, shrubs and annual grasses are among the dominants. Field brome (*Bromus arvensis*) was commonly important in these patches. Shrubs, including Pennsylvania blackberry (*Rubus pensilvanicus*) and sumac (*Rhus copallinum* and *Rhus glabra*) are common components, and are among the visual dominants in some patches after one or more years of rest following mowing or prescribed fire. A wide variety of other herbaceous species were present, including rush (*Juncus* spp.) and sedge (*Carex* spp.) species, composite dropseed (*Sporobolus compositus*), and blackeyed Susan (*Rudbeckia hirta*). The herbaceous flora varied based on soil characteristics and, apparently, on past restoration history, which was not perfectly documented.[249]

Two areas of the prairie experience wet conditions throughout much of the year. Although none have been classified as wetlands, two sedge-dominated communities are naturally emerging over pockets of Carytown soils in the west-central and southeast portions of the park.[250]

For management purposes, the National Park Service has organized the prairie restoration into nine management units (Figure 45).

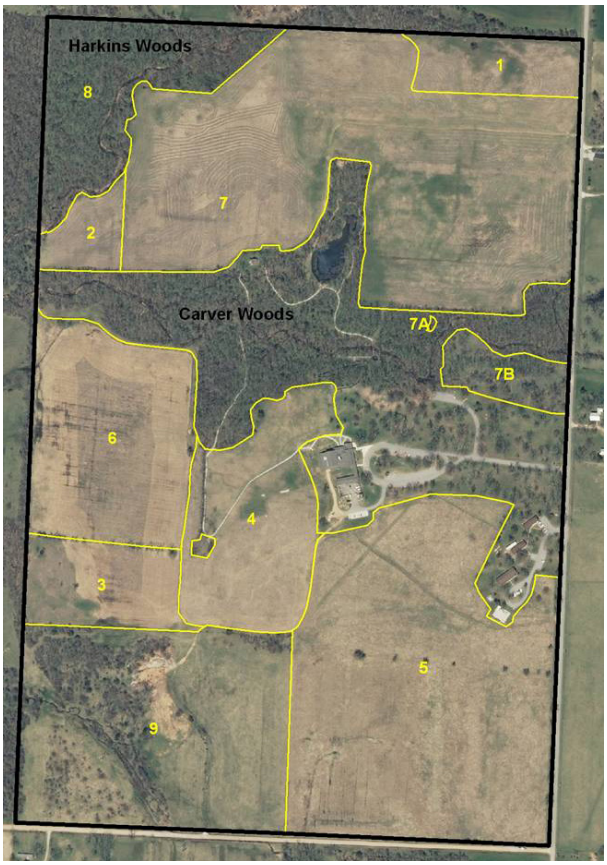


FIGURE 45. Prairie management units within the park. Source: Young, Leis, and Peitz, "Vegetation Management Alternatives for George Washington Carver National Monument," 2.

Management Unit 9 is the location of the former lead and zinc mine. The vegetation currently associated with the unit is classified as Non-native Ruderal Grassland by Diamond et al. as follows:

> This mapped vegetation type was dominated by tall fescue (*Schedonorus phoenix*), which was often the overwhelming dominant, and other

248. J. Jackson and B. Bensing, *A Historic and Vegetational Survey of the Five Prairie Management Units at George Washington Carver National Monument* (National Park Service, 1982).

249. Ibid., 29–32.

250. Harrington et al., 117.

successional grasses and forbs. Ruderal shrubs and small trees were often present, including Pennsylvania blackberry (*Rubus pensilvanicus*), hortulan plum (*Prunus hortulana*), multiflora rose (*Rosa multiflora*), honeylocust (*Gleditsia triacanthos*), and Osage orange (*Maclura pomifera*).[251]

Tracing the evolution of plant communities between pre-settlement and the present day illustrates the nature of the changes that have occurred as well as the character and composition of the communities during different periods; it can also help to describe the anticipated or targeted future condition of these communities.

Current park management is focused on restoring grassland prairies to pre-settlement conditions. The basis for understanding native vegetation and plant communities prior to European-American settlement of the area can include review of narrative accounts of travelers, General Land Office survey records (which in this area date to 1840–1841), and analysis of soil types and other environmental conditions that suggest the likelihood for certain plant associations.

There are no known first-hand accounts of the Moses Carver farm during early settlement that describe native vegetation. Scientists believe that prairies were an important land cover type in the pre-settlement landscape of Newton County, potentially covering one-third of the total land area.[252] Tallgrass prairie was primarily associated with the level to rolling uplands, with woodland covering drier hill tops and edging stream valleys and corridors.

American Indians, including the Osage Nation present within the area at contact, are thought to have been instrumental in maintaining the land in prairie through their use of fire.[253] Another factor in vegetation composition prior to European-American settlement was the presence of large herbivores such as bison that fed on grasses and forbs, influencing the composition and structure of the prairie, and creating non-vegetated gaps known as wallows.

The pre-settlement prairies existed as two principal types: **dry-mesic chert prairie with swale inclusions**—the same classification given to nearby Diamond Prairie—as well as **dry-chert prairie**.[254]

Dry-mesic chert prairie occurs on hills and plains on gentle to moderately steep slopes and ridges of all aspects. Several grasses, such as little bluestem, broom sedge, and Indian grass, are prevalent, although forbs are also present. This type of prairie typically was fire maintained. Today, this type of prairie is rare due to its association with prime farmland that has been converted to cropland or pasture.

Dry-chert prairie is associated with steep south and west facing side slopes of hills and plains along major prairie stream drainages. It is a mid-grass type characterized by little bluestem with mixed herbaceous flora. Due to the fact that this prairie type is fire maintained, it is now rare within the area.[255]

Based on analysis conducted in 2010 by representatives from the Missouri Resource Assessment Partnership (MoRAP), comparison of historic soil compatibility and current vegetation maps can be used to predict native vegetation based on soil types (Figure 46). From this analysis, most of the park currently managed as restored grassland prairie was designated as, in descending order: little bluestem/prairie dropseed-big bluestem, bluestem prairie; post oak/chinquapin oak-bluestem, post oak-bluestem prairie or savanna; and big bluestem/prairie cordgrass-switchgrass, mesic tallgrass prairie. Management Unit 2 is the only prairie unit that may be better suited to woodland than grassland, and should potentially be considered for conversion to white

251. Ibid., 27–29.
252. Harrington et al.; and Schroeder.
253. Harrington et al., 47.
254. Paul W. Nelson, "The Terrestrial Natural Communities of Missouri" (Jefferson City, Missouri: Missouri Department of Natural Resources, 2005).
255. Harrington et al., 55.

oak/burr oak-pecan, floodplain forest (small drainages).

There are also few descriptions of the Moses Carver farm that include detailed identification of plant communities during George Washington Carver's life there. According to *Springs of Genius*, by the 1860–1870s:

> the conversion of prairie to agricultural purposes would have been nearly complete . . . by the late 1870s there was probably very little uncompromised prairie left on the Carver farm. At least 100 acres had been developed as fields. The remaining open land was probably intensely grazed. . . . What prairie remained on the Carver farm would most likely have been restricted to fence rows, hedges and patches of marginal land used for pasture and hay production. These remnants would be significantly different from pre-settlement prairie, but because the composition of the pre-settlement prairie is unknown, the full extent of the changes cannot be determined.[256]

As noted, Moses Carver is known to have improved approximately 100 acres of his farm by 1860 for agricultural purposes; the 140 acres of unimproved land on the Moses Carver farm likely remained native prairie used to grazed livestock.[257] In addition to the pressure of plowing and grazing, the prairie was affected by fire suppression, which allowed woody growth to take hold and overtake the herbaceous landcover. Thus, there was probably very little high quality prairie or woodland left on the farm during George Washington Carver's lifetime.[258] Nonetheless, Burfield and Nilon suggest that as many as 111 acres of the original Moses Carver land remained unplowed prairie during George Washington Carver's early years on the farm.

Later in his life, George Washington Carver recalled walking through woods and fields filled with a variety of plants. Examination and enjoyment of plant communities and species are thought to have been a focus of George Washington Carver's boyhood at the Moses Carver farm. Carver specifically remembered wandering through the local woods, collecting and nurturing "floral beauties" as a boy. He employed his knowledge in the practice of a wide array of domestic stills and crafts, learning the medicinal and economic uses of the wild plant resources of the farm and surrounding region. Throughout his life, Carver was a passionate naturalist and a student of botany and geology. In his work, he displayed an unending interest in the potential economic and nutritional benefits of the South's native vegetation.[259] Although the vegetation present today is not entirely consistent with that present during Carver's lifetime, many of the species known to him during his childhood remain present today.

The land continued to evolve after George Washington Carver left Diamond in 1876 or 1877. Burfield and Nilon note that the park in its entirety had been plowed by the early 1900s.[260] Increasingly mechanized commercial farming in the late nineteenth and early twentieth centuries likely led to significant changes in plant community composition. The prairie continued to be plowed and grazed until establishment of the national monument in 1943.[261]

256. Harrington et al., as quoted in Annis et al., 7.
257. Jackson and Bensing.
258. Annis et al., 7.
259. Ibid., 7.
260. Burfield and Nilon, and Annis et al., 17–18.
261. Harrington et al.

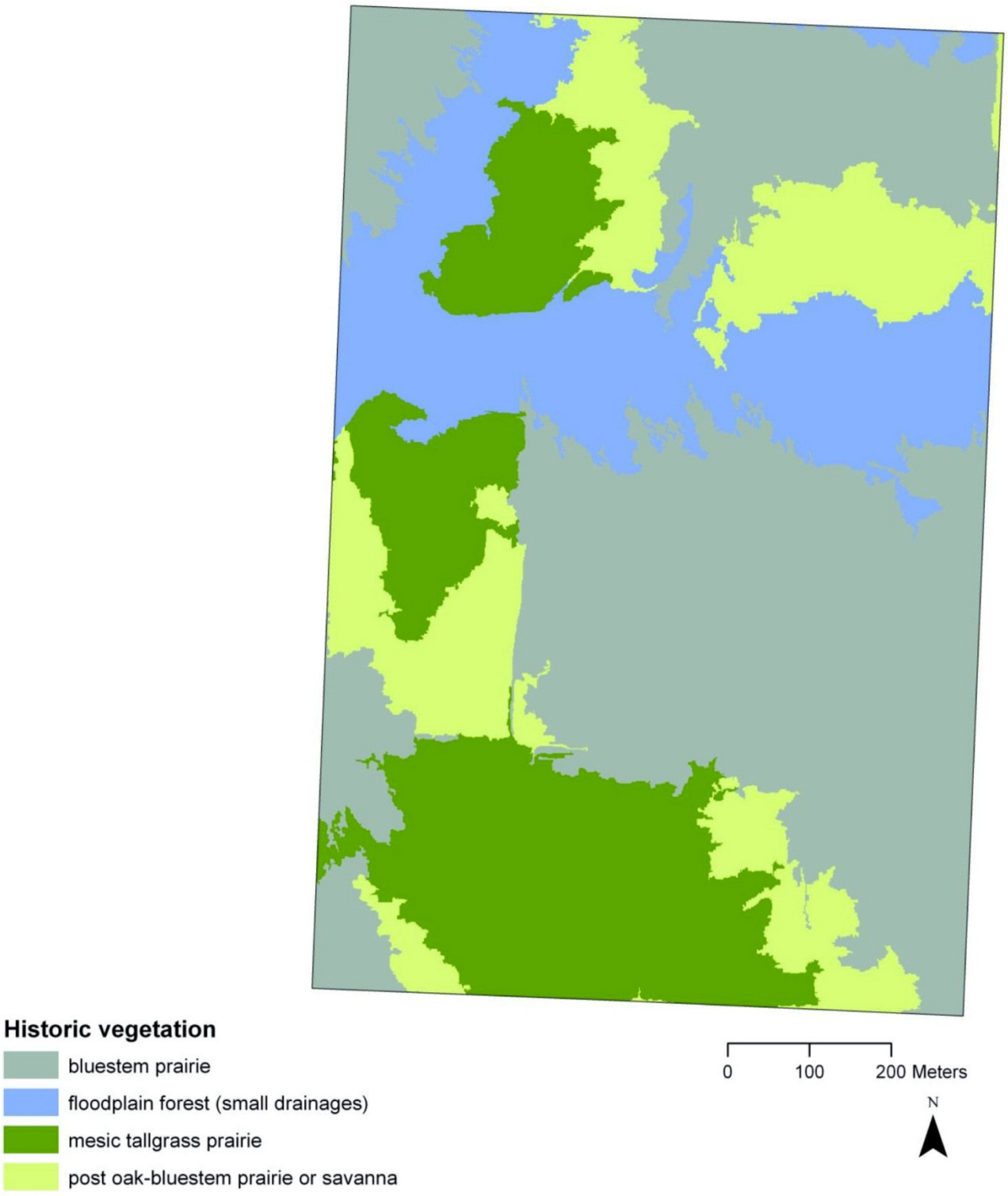


FIGURE 46. Historic soil compatibility vegetation map. Source: Annis et al. George Washington Carver National Monument Natural Resource Condition Assessment, 55.

The grasslands have been managed by the National Park Service since 1982 to reestablish native herbaceous and perennial forb species over former cropland. The goal is recreate a high quality pre-settlement prairie with high wildlife habitat value. Diamond Grove, a nearby 620-acre remnant of unplowed grassland, has been used as a model.[262] The National Park Service prairie restoration program began within two areas, totaling six acres, of rocky land believed to include unplowed prairie remnants. As mowing and grazing contracts with local farmers ended over the course of the 1980s, the National Park Service did not renew them, and instead began to manage the former fields for restored native grassland prairie.[263]

The existing grassland restoration program postdates both periods of significance and thus is neither character-defining nor contributing to the significance of the park.

Invasive Species. There are several non-native plant species that have become problematic for managing park communities in an ecologically balanced manner. Twenty-five invasive exotic species were identified as part of a vegetation survey conducted within the park in 2006. In 2013, the National Park Service published a draft of the study: *Invasive Plant Monitoring in George Washington Carver National Monument*, which will serve to update earlier efforts to document the problems associated with invasive species within the park.

Invasive species are considered to cover at least 9 percent of the total area of the park.[264] The park's approach to managing invasive species currently focuses on reducing the numbers of species and individuals, and impeding further expansion of existing stands.

The 2013 study suggests that "Cool season grasses, especially annual brome species such as bald brome, poverty brome, and cheatgrass, smooth brome accounted for the overwhelming majority of the invasive plants found on the park."[265] Japanese honeysuckle (*Lonicera japonica*) and other invasive species pose a threat to the health of the woodland communities. The 2013 study notes "Within the forest, Japanese honeysuckle was the most abundant invasive plant."[266]

A total of 152 exotic, or non-native, plant species have been identified within the park. Of these, 41 are considered to be of particular concern for their ability to disrupt native communities and systems. Three native species—smooth sumac (*Rhus glabra*), winged sumac (*Rhus copallina*), and Eastern redcedar (*Juniperus virginiana*), may be considered as native pest plants in prairies at the park.[267] Non-native species of concern located within the park include tall fescue, multiflora rose (*Rosa multiflora*), Japanese honeysuckle, bald and smooth brome (*Bromus racemosa; B. inermis*), Johnson grass (*Sorghum halepense*), Sericea lespedeza (*Lespedeza cuneata*), crown vetch (*Securigera varia*), and privet (*Ligustrum vulgare*).

Currently, the Heartland Exotic Plant Management Team (EPMT) assists the park, primarily using chemical treatments, to control selected invasive plants. These treatments are highly targeted and designed to reduce the abundance of specific plant species. The EPMT has committed to two clearly defined projects, including: 1) the control of invasive plants - nodding plumeless thistle (*Carduus nutans*), Johnsongrass (*Sorghum halepense*), crownvetch (*Securigera varia*), sericea (*Lespedeza cuneata*), sweetclover (*Melilotus officinalis*), and common mullein (*Verbascum thapsus*) - and sumac (*Rhus* sp.) as pest plants in restored tallgrass prairie and

262. Ibid., 68.
263. Annis et al., 7.
264. J. T. Cribbs, C. C. Young, J. L. Haack, and H. J. Etheridge, *Invasive exotic plant monitoring at George Washington Carver National Monument: Year 1 (2006)* (Fort Collins, Colorado: National Park Service, 2007), Table 5-5.
265. Craig Young, Jordan Bell, and Jennifer Haack, DRAFT *Invasive Plant Monitoring in George Washington Carver National Monument* (Republic, Missouri: National Park Service, Heartland Network, 2013), vii.
266. Ibid.
267. Ibid., 10.

2) the control of Japanese honeysuckle (*Lonicera japonica*) in the ruderal woodlands of Carver Woods.[268]

Other abundant species that need more consideration due to their abundance in prairies include smooth brome (*Bromus inermis*), curly dock (*Rumex crispus*), and hedgeparsley (*Torilis* spp.).[269] Based on their relatively low abundances, the park may also need to consider control of privet (*Ligustrum* spp.), Eastern redcedar (*Juniperus virginiana*), and white mulberry (*Morus alba*) in these forests at an apparently early stage of detection.[270]

While the ecological impact is only potentially high for European privet (*Ligustrum vulgare*), Amur honeysuckle (*Lonicera maackii*), and sulphur cinquefoil (*Potentilla recta*), these species should also be considered as potential targets for control due to their relatively low abundances.[271]

Missing Natural Features.

Descriptions of a spring associated with Harkins Branch appear in historic documentation. The location of this spring is not currently known; it is possible that the spring is no longer active. As noted above, the Williams spring is currently inundated by Williams Pond and not visible today except at certain times of the year when the level of the water in the pond is low.

Contributing Natural Features and Systems.

- Carver Branch
- Carver Spring
- Dry Branch
- Harkins Branch
- Williams Branch
- Drainage swale in the field south of the visitor center
- Semi-natural native successional woodlands (diminished integrity)

Non-Contributing Natural Features and Systems.

- Restored prairie

Missing Natural Features and Systems.

- Williams Spring
- Harkins Spring

268. Ibid.
269. Ibid., 14.
270. Ibid.
271. Ibid., 15.

3.3.2 Responses to Natural Features

Several features within the park exhibit cultural responses to natural features that can be traced to either the Moses Carver farm period or the early park development period. These features include the siting of the Moses Carver farm in close proximity to fresh water resources; inclusion of the Williams Pond in the Carver Trail system; the use of bridges to cross streams; the siting of the picnic area within the deciduous grove of trees south of Carver Branch; the siting of the visitor center to overlook features of the Carver farm; and the use of swales and culverts to address storm water management along the park entrance road. These responses to natural features survive from the two periods of significance and contribute to the significance of the park landscape. There are also responses to natural features that can be tied to Shartel ownership of the property, and others that postdate the period of significance.

In fact, based on the fulfillment of a 1952 recommendation made by regional National Park Service historian Merrill J. Mattes to develop the new national monument around the natural features that inspired George Washington Carver's love of plants and the environment during his childhood on the farm, the park as a whole also constitutes a cultural response to natural features.[272] The National Park Service has generally treated the park landscape as a historic designed landscape rather than a historic vernacular landscape, with a goal of honoring George Washington Carver's legacy through commemoration and interpretation, while preserving those traces of the historic scene known to Carver as possible without being concerned with a need to restore historic conditions. As such, the National Park Service has accommodated contemporary needs, but worked to maintain a light-handed approach to underscore Carver's humble origins and connection with nature.[273]

Responses to natural features reflecting Moses Carver's ownership of the property. Primary among the responses to natural resources representative of the Moses Carver farm period is the connection between the siting of domestic farm features and sources of fresh water. Archeological investigations have revealed the approximate location of the original Moses Carver homestead, later used as a slave cabin. The wooden cabin on the hillside overlooking Carver Branch was sited to take advantage of access to the perennial flow of Carver Spring and Carver Branch nearby. Today a wooden outline of the cabin along the Carver Trail interprets this relationship.

As noted, Moses Carver selected a site on a plateau in close proximity to an abundant water supply when settling the farmstead in the mid-nineteenth century. The 1841 General Land Office survey notes three cabins in the area where Carver settled— Section 7, Township 26N, Range 31W. All are located near springs. Two large fields are shown, each between 20 and 30 acres in size. They are intersected by a creek. The survey notes describe the land as rolling, mostly good, high prairie soil with gravel on the surface in most places.[274]

George Washington Carver, writing later of his experiences on the farm, remembers drawing water from Carver Spring and carrying it to the farm dwellings. George Washington Carver would later reminisce fondly about the "blue flag, water cress, and calamus" that grew around the spring.[275] Evidence of the siting of the Moses Carver homesteads in close proximity to fresh water sources survives today with diminished integrity. This response contributes to the significance of the park landscape.

272. Master Plan Development Outline, 1952.
273. Cultural Landscape Inventory, 22–24.
274. Ibid., 58.
275. Mark D. Hersey, *My Work Is That of Conservation: An Environmental Biography of George Washington Carver* (Athens: The University of Georgia Press, 2011), 13.

In addition to the siting of the house in proximity to fresh water sources, Moses Carver used the farm property to advantage of natural features in the way that he raised crops, generated other food sources, and pastured livestock. The natural resources of the farm likely fulfilled many of the needs of the family in the form of crops, forage, land cover conducive to support game, and wood for construction materials. In addition to the cultivation of farm products, wild foods, in the form of nuts and berries, among others, contributed to household consumption. Many native woodland trees produced edible nuts collected for food by the Carvers. These included hickory, chinquapin, and hazelnut. Fruiting vines, trees, and shrubs such as strawberries, sarvis berries, dew berries, blackberries, huckleberries, fox grape, pawpaws, persimmons, and raspberries grew wild in the woods and fields. Tea was made from spice bush that grew along the streams and from the bark of the sassafras tree. It is also thought that George used plants found on the farm to create dyes and paints that he used in his artwork.

Many believe that the physical environment of the farm helped to shape "the man that young George would become in profound ways."[276] On the farm, George Washington Carver was able to explore his interest in and curiosity about the natural world with wonder and freedom. Later in his life, George Washington Carver wrote about the influence of the natural world on his life work. According to George, this inspiration from nature formed the basis for his work with the peanut, as well as his less publicized experiments with herbal medicines, food substitutes, and paint colors from clay.[277] In 1870, eighty acres of the farm remained forested. Carver noted while at the Tuskegee Institute that he did much of his studying in the woods: "I literally lived in the woods. I wanted to know every strange stone, flower, insect, bird, or beast."[278] This likely led to his scientific interest in botany.

His participation in the farming operations also influenced his later research in agricultural science. Moses Carver subscribed to nineteenth century scientific methods of farming and his farm eventually became one of the most prosperous in the area.

On his farm, Moses Carver used timber from the gallery forests along the stream valley for construction material and fuel, cleared the level areas for crops, and pastured his livestock on the land that was less well suited to cultivation due to soil wetness, slopes, or droughty conditions. These connections between Carver's siting of cultivated fields and soil, orientation, slope, and available moisture conditions that resulted in a particular layout of farm features is no longer in evidence today. It is possible to assume that fields were most likely sited to take advantage of gently-rolling terrain, and fertile, well-watered soils. Pasturage was more likely associated with marginal soils, steep slopes, and wet areas. Livestock was allowed to range freely so farmers fenced in their crops rather than their livestock. The bluestem grasses of the native prairie were found to afford good forage for cattle; this led to a long-standing tradition of livestock raising within the region. When overgrazed, however, the native bluestem died out and was replaced with introduced bluegrass.

Moses Carver's 240-acre farm supported a variety of agricultural activities. In 1850, as evidenced in the agricultural census, Moses Carver was raising 1,500 bushels of Indian corn, as well as 500 bushels of oats, 10 bushels of Irish potatoes, and 50 bushels of wheat. His herd of fifteen sheep provided him with 40 pounds of wool, and his six milk cows with 100 pounds of butter. He also owned twenty-one horses, two asses, eleven cattle, thirty swine, and four oxen.[279]

In 1860, Moses Carver had improved 100 acres of his 240-acre farm. He continued to sow large

276. Krahe and Catton, 14.
277. Toogood, 33.
278. Gart, *He Shall Direct Thy Paths*, 61, citing George Washington Carver, "A Brief Sketch of My Life," circa 1922, part of the George Washington Carver Papers, Tuskegee University Archives.
279. Ibid., 28.

quantities of Indian corn, oats, and hay, but had also established a large orchard. The number of livestock listed in the census indicates that Carver had approximately half as many animals as in 1850, with a commensurate drop in the amount of wool produced. He appears to have experimented with beeswax and honey production, and increased his butter output since 1850.[280]

Between 1860 and 1870, the period during which George was growing up on the farm, Moses Carver amassed a large sheep herd and continued to expand his orchards. By 1870, his wool production had more than tripled over 1860 totals, and his orchard had increased tenfold in value.[281]

Between 1870 and 1880, Moses Carver appears to have taken an interest in raising horses. From the eleven horses listed in the 1870 census, Carver had expanded his holdings to twenty-four by 1880. John Harris recalled that "Mr. Carver liked horses. Neighbors brought ponies in and ran a race down a one-half-mile track. This was a neighborhood sport." Elza Winter, the grandson of one of Carver's neighbors, remembered, "Moses Carver got his money from raising race horses." J. H. Melton recalled visiting Moses Carver every Sunday and selling horses for him.[282]

Also influencing the agricultural landscape during Moses Carver's tenure of the farm was the growth of the railroads. Towns such as Joplin, Springfield, and Neosho grew up in response to the railroads, which also suggested a shift from subsistence to market-oriented agriculture, and enabled timbering and mining industries to become established. Mining became an important part of the Newton County economy during the nineteenth century. In 1850, J.W. Moseley discovered lead on Shoal Creek near Neosho, and later opened a mine. By 1880, Joplin had become a supply center for regional mining.

Evidence of these activities is missing within the park landscape today. Although there is no direct evidence of agriculture on the property, National Park Service management has maintained the former fields in open vegetative land cover through restoration of grassland prairie.

Responses to natural features associated with Shartel ownership of the property. There are also several responses to natural features that can be traced to Shartel family ownership of the property during the early- to mid-twentieth century. Principal among them is Williams Pond, an impounded water feature developed by the Shartel family in the 1930s by damming Williams Branch, fed by a free-flowing spring. The pond was intended to reduce flooding along Williams Branch and protect the relocated Moses Carver house from rainy season inundations.[283] It is possible that the pond also supported the watering of the Shartel's thoroughbred cattle.

Williams Pond is located north of Carver Branch (Figure 47). The three-quarter-acre pond was enlarged by the National Park Service in 1978. It is a focus of the park's Carver Trail and associated Contemplative Loop Trail.



FIGURE 47. Williams Pond, formed by impounding Williams Branch and spring.

Other responses to natural features present during Shartel ownership of the property include stream crossings using small bridges and hardened fords. These features have since been replaced with the present day boardwalks and bridges.

Also missing from the Shartel period is evidence of zinc and lead mining in the southwestern corner of the property. The first evidence of zinc mining on

280. Ibid., 27–28.
281. Ibid., 28–29.
282. Ibid., 29.
283. Harrington et al., 66.

the property is a lease to mine zinc and lead in the southwestern corner of his farm dated 1915.[284] Although little is known about mining on the property during Moses Carver's lifetime, the Granby & Neosho Mine is known to have operated on the former Moses Carver farm circa 1916–1920. The Tulsa-Diamond Corporation mine later operated a 250-ton mill there in 1929. Two exploratory shafts of 60 and 120 feet were drilled in 1935 and 1939, and the mineral rights leased to the Liberty Mining Company of Tulsa, Oklahoma, which began mining operations in 1942. This operation, characterized by a 250-foot shaft where the zinc and lead ore was brought up to the surface for extraction, continued for nearly two years. The mine was deactivated around the end of 1943; a 40-foot high tailings pile was left on the site. The tailings pile has since been removed.

Responses to natural features associated with National Park Service development of the park. Several features that represent responses to natural features are associated with National Park Service administration of the park. These include the use of the grove of mature trees to site a picnic area, locating the visitor center on a high point overlooking the Moses Carver farm and cemetery, and the use of bridges and culverts to convey roads and trails across streams and swales. These responses date to the early park establishment period and contribute to the significance of the historic landscape. As early as 1942, the National Park Service determined to continue farming using a crop rotation system, conducted by lease with the George Washington Carver National Monument Foundation. As early as 1950, the Foundation suggested using the Moses Carver property as a demonstration farm that would serve the education of African American youth. Their efforts to successfully produce crops, however, were unsuccessful, and the leasing of the land passed to local farmers.[285] Farm uses have since been replaced by native grassland prairie restoration efforts.

Siting of the Carver Trail. The Carver Trail was originally designed to take advantage of the property's natural resources and to interpret George Washington Carver's life on the farm. Features that were the focus of interpretation along the trail included Carver Branch, Carver Spring, Williams Branch, and the riparian woodlands. Since its original construction, the trail has been realigned in some locations and resurfaced to address erosion problems, provide stream and wet area crossings, and accommodate universal accessibility. These changes postdate the early park development period of significance, slightly diminishing the integrity of the trail corridor as a response to natural resources.

Inclusion of Williams Pond in the Carver Trail. The National Park Service incorporated Williams Pond into the original design of the Carver Trail. The National Park Service later expanded Williams Pond in 1978, obscuring evidence of Williams Spring. Today, the pond is a focus of the Contemplative Loop Trail that honors George Washington Carver, and remains integral to the design of the Carver Trail. The pond survives from the early park development period of significance, with diminished integrity due to its expansion, and contributes to the significance of the park landscape.

The use of bridges in association with park trail stream crossings. After the National Park Service acquired the Moses Carver farm property in 1953, one of the first improvements made within the park was the Carver Nature Trail (today

284. Miller, "Mining," 81–82. Records also indicate that the farm owner permitted mine exploration by Kansas Exploration, Inc., in 1925, and by the Boston Commerce Drilling Company in 1928–1929. ("Lead and Zinc Mine, Potable Water Quality, Newton County National Priorities List of Hazardous Waste Sites," September 30, 2003, File L54, ACF, GWCA.)

285. Krahe and Catton, 76.

referred to as the Carver Trail) that traced George Washington Carver's experience on the farm. To convey the trail across Carver and Williams branches, the National Park Service constructed wooden footbridges. In 2001, two of these bridges were replaced by sturdy steel bridges with wood decking. There are also two wooden footbridges that cross Williams Branch near the Moses Carver house. The trail also incorporates a boardwalk with recycled-content lumber for decking in the marshy area south of the Moses Carver house (Figure 48).



FIGURE 48. A footbridge conveys visitors over Williams Branch near the Moses Carver house.

The siting of picnic areas in the deciduous grove. Two picnic areas edge the park entrance road. Both benefit from the dappled shade afforded by a grove of mature shade trees that parallels the road (Figure 49). The peaceful, cool, and refreshing quality of the grove offers a haven for visitors during the hot and humid summer months. The picnic area to the north of the entrance drive includes an access road, parking, and both standard and universally accessible picnic tables. There are also trash and recycling receptacles, and a drinking fountain. The picnic area to the south of the entrance drive features several tables sited beneath the trees at the edge of the visitor parking area located near the visitor center.

The original siting of the picnic area to the east of the entrance road in 1953 took advantage of the tree grove present at the time of park establishment. The cool shade afforded by the trees complements the recreational needs of park visitors. This response to natural resources survives from the early park development period and contributes to the significance of the park landscape.



FIGURE 49. The grove of mature trees along the entrance road provides an ideal location for the park's picnic area.

The siting of the visitor center to overlook Moses Carver farm features. The park's visitor center was built in 1960 and later expanded in 2007. It occupies the edge of a ridgeline that affords expansive views of the land Moses Carver is known to have farmed during the mid to late nineteenth century. The location of the visitor center takes advantage of level topography, cool breezes, and good prospect; this siting is representative of Mission 66 design principles that linked interpretive centers with the primary resources of a park (Figure 50). The visitor center has an observation deck offering views across the park landscape to the west, southwest, and northwest.

Although the integrity of the visitor center has since been diminished by changes made in 2007, the original siting of the building survives from the early park development period and contributes to the significance of the park landscape.



FIGURE 50. The visitor center overlooks the restored prairie.

Swales and culverts used along the entrance road for drainage. The park entrance road was built in 1959 as an elevated corridor edged by drainage swales. Overland flow of storm water is conveyed through the swales to concrete culverts that pass beneath the pavement. These features were installed as part of Mission 66 development of the visitor center in 1959–1960.

The road generally follows the earlier alignment of the Shartel farm road, but entailed elevating the roadway to avoid wet areas and afford views to the park's visitor center. The culverts and swales established to convey storm water away from and beneath the road corridor constitute responses to natural resources that survive from the early park development period and contribute to the significance of the park landscape.

Contributing Responses to Natural Features.

- Siting of the Moses Carver farm domestic precinct in close proximity to fresh water sources
- Siting of the Carver Trail to take advantage of natural features, and inclusion of the Shartel-era Williams Pond
- Use of bridges in association with park trail stream crossings
- Siting of the picnic area in the deciduous shade tree grove
- Siting of the visitor center on a ridge overlooking the fields associated with the Moses Carver farm (diminished integrity)
- Swales and culverts used along the entrance road for drainage

Non-Contributing Responses to Natural Features.

- Culverts used along Carver Trail
- Williams Pond constructed for flood control

Missing Responses to Natural Features.

- Moses Carver farm organization with agricultural uses linked to soil and terrain suitability
- Shartel-era stream crossings
- Lead and zinc mining

3.3.3 Patterns of Spatial Organization

George Washington Carver National Monument is primarily characterized by open restored prairie vegetation that allows for expansive views across the landscape. The open prairie vegetation is broken by a broad wooded zone that follows the riparian corridor of the Carver and Williams branches. The woodland forms a band that divides the property in an east-west direction near its center. The Harkins Branch corridor located in the northwest corner of the park is also wooded. Set within this milieu is the more manicured landscape of the park's developed core, which occurs within the east-central section of the park. The developed core encompasses the area between the park entrance and the visitor center. It includes the grove of mature shade trees, the picnic areas, visitor parking, and the visitor center and maintenance yard.

These patterns of spatial organization are nearly consistent with those present during the early park development period, although the extent of woodland has expanded, and formerly mown fields have been transformed into grassland prairie.

Entrance road corridor. The linear entrance road corridor is straight, wide, and edged with groves of trees. The entrance road is oriented to the west, and leads to the visitor center. The visitor center, long and low in profile, lies perpendicular to the alignment of the entrance corridor and terminates views along the road (Figure 51). To either side of the road, views are afforded into groves of mature shade trees. Views of an adjacent park housing complex to the south are generally blocked by shrubs and tree plantings. Views into the grove follow a spur road that leads to picnic area parking.

The park entrance corridor was constructed circa 1959–1960 to provide access to the new visitor center. During Mission 66 planning efforts, park planners determined to place the visitor center in close proximity to the features interpreting Carver's boyhood, while locating the employee residences at a distance from the primary visitor use areas to avoid visual impacts to the interpretive experience.

The entrance corridor survives from the period of significance and contributes to the significance of the park. Its integrity has been diminished by the expansion of parking along the northern side of the loop road circa 1986.



FIGURE 51. The linear park entrance corridor, looking west toward the visitor center.

Visitor center environs. The visitor center environs, comprised of the landscape to the east, north, and west of the visitor center building, is generally characterized by paved paths and plazas, open lawn, foundation plantings, and ornamental planting beds. It is edged by woodlands to the north, and the shade tree grove along the entrance road to the northeast, as well as the maintenance facilities to the south. The park maintenance facilities and yard, which are connected to the visitor center by a breezeway, are screened from view by the descending topography and carefully placed shrub and grass plantings. From the park entrance, visitors move easily around the building to the north where the trailhead for the Carver Trail is located (Figure 52).

The open knoll north of the visitor center is used by the park to orient visitors. Several circulation systems intersect here, including paths leading out of and around the visitor center, and the beginning and end points of the Carver Trail. The space contains monuments, markers, sculptural elements, and interpretive signage for visitor orientation and as a trailhead. It is contained by the grove along the entrance corridor and the wooded Carver Branch stream corridor. Although

the space has been used since the early park development period, aspects of its spatial character have changed since 1960, due to expansion of the visitor center, relocation of the Carver bust, and the loss of several elm trees to Dutch elm disease that once shaded this area. The visitor center environs survives from the period of significance, albeit with diminished integrity, and contributes to the significance of the park.



FIGURE 52. The visitor center environs.

Picnic grove. A large grove of mature shade trees, widely spaced and open-grown, edges the park entrance road to the north, with trees also edging the road to the south. The grove edges a band of riparian forest that follows Carver Branch. The open grown nature of the trees within the grove allows for an understory of mown turf. The park maintains a picnic area within the shade tree grove.

The open grown grove of mature shade trees that edges the entrance drive appears to have been established during Shartel ownership of the property. The grove was integrated into the design of the park entrance and visitor core experience as part of early park development (Figure 53). This grove survives from the period of significance and contributes to the significance of the park.



FIGURE 53. The grove of shade trees along the entrance drive during the early park development period. Source: George Washington Carver National Monument photo collection.

Carver Trail corridor. The one-mile Carver Trail corridor that begins at the visitor center traverses a generally wooded area that follows the park's stream valleys. While within the riparian woodland, the Carver Trail passes Carver Spring and the Boy Carver statue, and crosses Carver Branch; a loop trail circumnavigates Williams Pond (Figure 54). The trail briefly emerges into a more open landscape of the Moses Carver house precinct. The trail then reenters the woods, crossing both Williams and Carver branches, before passing into the open prairie below the visitor center. Here, the trail follows a row of walnut trees planted by the National Park Service in the 1950s to recall a hedgerow established by Moses Carver during the nineteenth century (Figure 55).

Although the corridor was somewhat wooded when the trail was established in the late 1950s, the woodland has expanded and became more dense over the ensuing 60 years. Today woodland conveys a dense tunnel-like quality to the trail corridor than was present during the early park development period. Missing are the mix of open and savanna woodland conditions that characterized the trail when it was first established. The wooded corridor thus survives, but with diminished integrity of feeling, from the early park development period.



FIGURE 54. The Carver Trail cuts a narrow corridor through the woodland along Carver Branch.



FIGURE 55. A row of walnut trees that edges the trail below the visitor center recalls a fence row established by Moses Carver.

Walnut fence row. A row of walnut trees edges the Carver Trail between Carver Branch and the Carver family cemetery. The trees afford dappled shade along the trail. Additional prairie land is visible through the row of walnuts to the west.

The trees were planted in the 1950s by the National Park Service to replicate a feature thought to have been planted by Moses Carver on the property as a fence row. The trees contribute to the overall feeling of agricultural field patterning on the property. This feature survives from the early park development period with integrity and contributes to the significance of the park landscape.

Moses Carver house and yard. The relocated Moses Carver house sits at the edge of the wooded stream corridor within a fenced yard edged by an open grown grove of walnut trees. From the fenced area, views of fields are afforded to the north and west (Figure 56). The house, yard, and fields are used to interpret nineteenth century farm life.



FIGURE 56. The Moses Carver house precinct.

The walnut trees and fenced yard were installed in the 1950s. Demonstration garden beds were added later and do not contribute to the historic landscape. The Moses Carver house and yard otherwise survives from the early park development period with sufficient integrity to contribute to the park landscape.

Carver family cemetery. The Carver family cemetery is a one-tenth-acre space enclosed within a stacked stone wall constructed by the National Park Service in 1954 to replicate the wall present during Moses Carver's ownership of the farm. In 1959, the National Park Service acquired thirty-six headstones and installed them in the cemetery in support of park development and interpretation of this former feature of the Moses Carver Farm.

Moses Caver established the Carver family cemetery for family as well as community members. The original cemetery was surrounded by a stone wall composed of limestone rubble collected from the fields. The original wall was later dismantled and the stone reused during the Shartel period of property ownership (Figure 57).



FIGURE 57. The original wall surrounding the cemetery was dismantled during the Shartel ownership period. It was reconstructed by the National Park Service in 1954. The date of this photograph is not currently known. Source: George Washington Carver National Monument photo collection, image 439.

The wall present today was reconstructed by the National Park Service based on oral tradition and archeological investigations. Since 1954, the entrance through the cemetery wall has been relocated from the east side to the north side to coordinate with the Carver Trail, and many of the stones have fallen or become dislodged and subsequently restacked by park personnel. These changes diminish the integrity of the reconstructed wall. The pattern of spatial organization exhibited by the cemetery otherwise survives from the early park development period and contributes to the significance of the park landscape, although the wall has since undergone some changes that diminish its integrity of design and workmanship.

Open fields/prairie units. There are nine prairie management units totaling 130 acres within the park. These prairie units, which date to the early 1980s, generally follow the arrangement of agricultural field patterns present during the Moses Carver farm period. They are located throughout the park, with the exception of more formal areas leading from the park entrance to the visitor center environs, and woodlands that edge each stream corridor.

At a broad scale, the open character of the fields is consistent with the historic agricultural patterns of spatial organization present during the Carver period, as well as the open field patterns present during the early park development period. However, the texture and height of the prairie land cover differ from those of the former crop fields, hay fields, and pastures, diminishing the integrity of this pattern of spatial organization. Thus, while the pattern of open land cover survives from both periods of significance and contributes to the significance of the park, this feature has diminished integrity of feeling and association due to the difference in character and texture of the land cover.

Missing are examples of fields established within cleared bottomland terraces by the Carvers during their early occupation of the property. The bottomland terraces of Carver Branch were likely the first focus of cultivation by the Carvers due to the comparative ease of preparing the land for planting. However, with the unsuitability of the wet soils for agriculture and the potential for flooding, the bottomland terraces were later abandoned in favor of upland prairie land. Any

evidence of these fields has long since disappeared due to subsequent land use and successional woodland growth.

Woodland cover. Woodland cover generally follows the three stream corridors, forming a thick band through the center of the park, and a second grove in the park's northwestern corner. These woodlands generally follow the outline of gallery forests present at the time of European-American settlement of the region in the 1830s, as well as the concentration of forest cover likely known to George Washington Carver; the Moses Carver farm is thought to have included 80 acres of woodland circa 1870, which is consistent with current conditions. The wooded stream corridors present today may offer some consistency with the community present during George Washington Carver's life on the farm at least at a macro level. Present-day woodlands are far denser than the former gallery forests, which featured a cleared understory due to fire and grazing.[286]

At the time the park was established, the property was far less wooded. It is likely that portions of the woodlands were logged or cleared during the early twentieth century to support the cattle operations of the Shartel family (Figure 58). Inventory of property plant communities has suggested that all of the woodlands on the property are young, secondary successional communities less than 100 years of age. As patterns in the landscape, however, the woodlands have generally occupied the same or similar locations over time. Thus the wooded stream corridors generally survive from the periods of significance, with diminished integrity of feeling, and contribute to the significance of the park landscape.



FIGURE 58. The wooded area along Carver Branch was less extensive during the early park development period as indicated by this 1959 photograph. Source: George Washington Carver National Monument photo collection, image 2647.

Missing Patterns of Spatial Organization.

Moses Carver farm Features. Missing from the nineteenth-century Carver property today are the texture of the farm and the division of the land into units associated with agricultural production. Elements of the property that are known to have existed, but are now missing, were primarily associated with the original Carver domestic farmstead located south of Carver Branch near the present-day visitor center. The features likely included a dwelling, outbuildings, a fenced kitchen garden, paths, and tree plantings. Beyond the precinct were crop fields edged by fencing, a large walnut and fruit tree orchard, and a persimmon grove. Moses Carver is said to have raced horses on his property.

Contributing Patterns of Spatial Organization.

- Entrance road corridor
- Visitor center environs
- Picnic grove
- Carver Trail corridor

286 A gallery forest is a woodland that forms as a corridor along a river or wetland and sometimes projects into an adjacent landscape that is sparsely treed, such as savanna or prairie. Gallery forests form due to the availability of soil moisture, fertility of the alluvial soils, and protection from some fire events associated with stream valleys.

- Walnut fence row
- Moses Carver house and yard
- Carver family cemetery
- Open fields
- Woodland cover

Non-contributing Patterns of Spatial Organization.

- None identified

Missing Patterns of Spatial Organization.

- Carver farmstead
- Crop fields edged by fencing
- Horse race track (speculative)
- Walnut and fruit tree orchard
- Persimmon grove

3.3.4 Views and Vistas

George Washington Carver National Monument exhibits several views designed primarily for visitor enjoyment and understanding of the historic and commemorative landscape. Predominant among them are the axial view along the park entrance road corridor that focuses on the visitor center; linear views that direct visitors along the trail to elements of the land known to George Washington Carver; and long expansive views from the visitor center and interpretive trail across the open restored prairie south of Carver Branch and north and west of the Moses Carver house. Although these views were all established during the early park development period, the character of the restored prairie postdates the period of significance. While prairie likely remained present on the farm by the 1870s, these views were likely of agricultural fields and the Moses Carver farmstead and not of prairie, and thus possess diminished integrity of feeling and association. Otherwise, all of the views survive with sufficient integrity to contribute to the significance of the park landscape.

Little is known about views that were important to the Carvers in the design and layout of their farmstead during the nineteenth century. There are no specific views noted in historic documentation of the property, and it is not known to what degree views played a role in the delineation, orientation, and siting of the Moses Carver farm. It is possible that the Moses Carver farm was visible from the adjacent public road corridor, although it is believed that the Carvers were private people who chose to site their dwelling out of site of the road.[287]

It is also likely that the original house and cabin sites, located on the knoll overlooking Carver Branch, afforded views of the water course to the north and farm fields to the south during George Washington Carver's lifetime. Today, the view of these water resources is blocked by woody vegetation and is no longer discernible. It is also likely that expansive views were afforded across the rolling hills of the landscape due to the extent

287. Toogood, 30.

of prairie cover and crop fields. Today, visitors continue to enjoy views of adjacent farms, as likely occurred historically from the property's higher elevations. Otherwise, the views present on the property today all date to National Park Service development of the property as a park in the 1950s, with modifications that reflect the effort to restore native grassland prairie communities.

Views into the park along the entrance road. Visitors enter the park through a gate located along Carver Road. The entrance road that leads into the park follows a straight path before splitting to form a large loop in front of the visitor center (Figure 59). A triangular planting bed edges the eastern end of the loop, diminishing views of the visitor center. The entrance road is generally aligned with the visitor center environs and the entrance into the building, affording visitors an opportunity to understand the layout and organization of the park upon arrival. The road is framed by plantings of shade trees, which further direct the view toward the visitor center. This view was established with construction of the road and the original visitor center. Its integrity is diminished slightly due to changes made to the visitor center in 2007 and the addition of the triangular planting bed at the eastern end of the loop that interferes with direct views of the visitor center from the drive. Although it has diminished integrity of design, this view contributes to the significance of the park landscape.



FIGURE 59. The linear view along the park entrance road.

Linear views along the Carver Trail. A narrow linear view is associated with the generally wooded environs of the Carver Trail (Figure 60 and refer to Figure 54). The woodland that edges the trail directs views along the linear corridor and limits views beyond.

The Carver Trail was one of the first features established by the park. It is likely that the environs and setting of the trail were less wooded when it was first installed. The subsequent growth of woodland has led to diminished integrity for views associated with the trail. The need to clear views and vistas along the trail appears in several Superintendent's annual reports, although the locations of these activities are not noted.[288] Portions of the trail have since been rerouted to better accommodate universal accessibility, altering the original design of the trail and associated views. The views along the Carver Trail generally survive from the period of significance, with diminished integrity, and contribute to the significance of the park landscape.



FIGURE 60. Linear views are associated with the Carver Trail.

Vista of restored prairie from the visitor center. The visitor center, built in 1960, was sited at the edge of a plateau, affording views across the descending topography to the west that supported interpretation of the Moses Carver farm (refer to Figure 50). This siting is consistent with Mission 66 principles that suggested placing visitor centers as close as possible to, and within view of, a park's primary resources. A portion of the Carver Trail passes through the open fields and restored

288. Superintendent's Annual Report, 1982.

grassland to the west of the visitor center, affording additional views across the landscape.

When the visitor center was built in 1960, views from the building to the west encompassed fields maintained for agricultural purposes. The National Park Service initially maintained the fields through establishment of leases with local farmers, perpetuating this historic activity and associated views.

In 1973, the visitor center was described as obstructing "the visitor's panorama of the historic scene which once included the cemetery, farm buildings, log cabins, vegetable garden, orchard, the fields of Indian corn, hay, oats, and the pens and pastures with horses, cows, sheep, and hogs feeding."[289]

In the 1980s, however, the National Park Service began to convert most farm fields to grassland prairie. Today, the view from the visitor center is entirely of restored prairie. This view is discussed in park planning documents as the "visitor viewshed," designed for aesthetic appeal and to introduce visitors to the importance of land conservation and native plant communities to meet objectives outlined in 2007 in the park's Long-Range Interpretive Plan.[290] It postdates the period of significance and does not contribute to the significance of the park landscape.

View across the open prairie through the row of walnut trees. As noted earlier, a portion of the Carver Trail is edged by the row of walnut trees planted by the National Park Service to recall a feature of the Moses Carver farm. The space between the trees allows for a series of filtered views to the open grasslands to the west (Figure 61).

These walnut trees were planted by the National Park Service in the 1950s during the early park development period. The resulting filtered views to adjacent fields thus survive from the early park development period, although their integrity is diminished by the change in land cover from agricultural fields to prairie. These views contribute to the significance of the park landscape.



FIGURE 61. Filtered views across the prairie through the row of walnut trees northwest of the cemetery.

Vista across prairie from the Moses Carver house. The Moses Carver house is set at the edge of an open prairie within a fenced yard featuring a grove of walnut trees. From the dwelling precinct, visitors are afforded long views across the adjacent prairie (refer to Figure 56).

This vista has been altered by the transition from agricultural fields to prairie. It does not contribute to the significance of the park landscape.

Contributing Views and Vistas.

- View into the park along the entrance road
- Linear views along the Carver Trail
- View across the prairie through the fence row of walnut trees
- Views of surrounding farmsteads

Non-contributing Views and Vistas.

- Vista across the prairie below the visitor center
- Vista across prairie from the Moses Carver house

289. Toogood, 43.

290. Woolpert, 4-3, 4-4; and Burfield and Nilon, 32.

Missing Views and Vistas.

- Siting of the Moses Carver house out of view of the road
- Possible view from original house and cabin sites to Carver Branch and Spring
- Views of surrounding farmsteads

3.3.5 Topographic Modifications

George Washington Carver National Monument currently contains evidence of several topographic modifications associated with Shartel ownership as well as early park development of the property. There are no specific topographic modifications that have been identified to date within the park that can be tied to the Moses Carver farm period.

Topographic modifications that can be tied to the early park development period include grading to accommodate the park entrance road and parking areas, the visitor center, the Carver Trail, and park housing complex. Topographic modifications that precede park establishment include the original Williams Pond dam, constructed during Shartel ownership. All other topographic modifications postdate the early park development period of significance. They include rehabilitation of the Williams Pond dam, rehabilitation of the landscape associated with the former lead and zinc mine, filling of a former park landfill, grading associated with expansion of the visitor center, and trail alignment changes and improvements.

Topographic modifications associated with Moses Carver ownership. Few topographic modifications have been identified in association with the Moses Carver farmstead. It is likely that farm activities took advantage of suitable soil conditions, and that the family did not manipulate the terrain to support agriculture.

Topographic modifications associated with Shartel ownership. During Shartel ownership, the primary topographic modification was construction of an earthen dam to impound Williams Branch. Williams Pond was established to control flooding and possibly to water livestock between 1930 and 1939 (Figure 62). This topographic modification did not occur during either period of significance, and thus does not contribute to the significance of the park landscape.



FIGURE 62. An earthen and stone dam was constructed during Shartel ownership to impound Williams Branch. Source: George Washington Carver National Monument photo collection.

Topographic modifications associated with National Park Service ownership. Topographic modifications completed during the early park development period included grading to accommodate the entrance road and parking area, the Carver Trail, the original visitor center and maintenance complex, and the housing complex. The park also graded the banks of the Carver and Williams branch stream corridors to address erosion, and placed rip rap to prevent further erosion. These modifications contribute to the significance of the park landscape.

Topographic modifications that postdate the period of significance include expansion of Williams Pond, grading to expand the visitor center and parking area, changes made to the Carver Trail, and mitigation of the former mine and landfill sites.

Grading to accommodate the entrance road and parking area. Several projects were completed at the park in 1959 and 1960 to accommodate park visitor and operational needs that required grading. The features established include the entrance road, visitor center, and housing complex. To construct the entrance road, the National Park Service established a raised corridor, edged by swales and other storm water management features (Figure 63 and Figure 64). The entrance road was carefully graded to establish a level, smooth route between Carver Road and the visitor center, although the former Shartel access drive formed the basis for its layout. Initially, parking was afforded along the southern edge of the loop near the visitor center. Circa 1986, a second parking area was added to the northern section of the loop that required additional grading.



FIGURE 63. The park entrance road follows a raised corridor.



FIGURE 64. Swales and culverts convey storm water away from the entrance road.

Grading to accommodate the visitor center and addition. The visitor center was constructed in 1960. The site was graded to create a level and welcoming approach and entrance to the building from the east. Construction of the building also included its siting into a hillside. Surviving evidence of the grading conducted to accommodate construction of the original visitor center structure contributes to the significance of the park landscape, with diminished integrity of design due to changes made to the building in 2007.

The 2007 visitor center expansion greatly enlarged the building. New construction, however, was

designed to disturb as little ground as possible and required minimal grading. Work entailed establishing the foundation for the building and sculpting the landform between the expanded building and the maintenance building to create an evenly-sloped descending landform that would promote positive drainage (Figure 65). Grading between the buildings was not entirely successful; there is an isolated low spot at the southwestern corner of the visitor center where storm water collects and cannot drain. Current evidence of grading associated with the visitor center postdates the period of significance and does not contribute to the significance of the park landscape.



FIGURE 65. The expansion of the visitor center in 2007 required grading between the expanded building and the maintenance building.

Grading to accommodate the park housing complex. As part of the early park development effort guided by Mission 66, three buildings were constructed along Carver Road to accommodate park personnel housing. These buildings generally face the public road corridor. They are accessed via a short road, edged by parking, and a looped turnaround. These features were built from a site plan that indicated grading to establish level building foundations and yards, and a smoothly sloped road corridor and parking area. The grading efforts conducted to establish this complex occurred within the early park development period of significance and contribute to the significance of the park landscape.

Williams Pond enlargement and rehabilitation of the earthen dam. In 1978, the National Park Service enlarged Williams Pond by excavating the impoundment area and reworking the earthen dam structure; the new dam enlarged the pond from approximately one-half to nearly three-quarters of an acre in size (Figure 66). In 1979, the National Park Service leveled the bank covering the area around the original dam. Excess sludge and dirt from the dredging project of the previous year was spread in two fields adjacent to the pond.[291] These grading efforts postdate the period of significance and do not contribute to the significance of the park landscape.



FIGURE 66. View of the earthen dam constructed across Williams Branch to create Williams Pond.

Grading to construct the Carver Trail, including accessibility improvements. The Carver Trail was constructed as part of the initial development of the park circa 1953. The trail was graded to establish a smooth, evenly sloped route. Portions of the trail followed the Carver Branch stream corridor. Problems quickly emerged with erosion and accessibility of the trail. In order to diminish the steepness of some slopes, and to meet universal accessibility standards, sections of the trail have been realigned to form switchbacks and follow gentler terrain, particularly along the sloped terrain north of the birthplace cabin site (Figure 67). The new trail configuration required construction of low rock retaining walls and associated grading (Figure 68). The section located near the row of replanted walnut trees has also been rerouted and re-graded to accommodate universal accessibility. These trail improvements

291. Superintendent's Annual Report, 1979.

postdate the period of significance. The original trail work conducted in the 1950s falls within the early park development period of significance and contribute to the significance of the park landscape.



FIGURE 67. Portions of the Carver Trail feature switchbacks to meet universal accessibility guidelines.



FIGURE 68. Low rock retaining walls and associated grading were used to support the switchbacks.

Filling of the former landfill. In 1982, a park landfill established in the 1960s was bulldozed and smoothed and the site rehabilitated.[292]

Grading to mitigate mine site and tailings. In 2004, the National Park Service acquired title to the 30-acre parcel originally part of the Moses Carver farm, and later used for lead and zinc mining. Land disturbance associated with the mine and piled tailings was mitigated in 2006. The tailings were described in several reports as 30- to 40-foot-tall piles. These features are no longer present.

Contributing Topographic Modifications.

- Grading to accommodate the entrance road and visitor parking area (northern)
- Grading to accommodate the visitor center
- Grading to construct the original Carver Trail
- Williams Pond dam
- Grading to accommodate the park housing complex

Non-contributing Topographic Modifications.

- Grading to accommodate the expanded visitor parking area
- Grading to accommodate universal accessibility improvements associated with the Carver Trail
- Grading to accommodate the visitor center expansion
- Excavation to expand Williams Pond and spreading of the borrow material
- Grading to fill the former landfill site
- Grading to mitigate mine site and tailings

Missing Topographic Modifications.

- Lead and zinc mine tailings and excavated shaft

292. Superintendent's Annual Report, 1982.

3.3.6 Land Uses and Activities

George Washington Carver National Monument is associated with several land uses and activities. These include cemetery, commemoration, commerce, interpretation/museum/education, maintenance, park administration, recreation, utility, and visitor service uses. These land uses are primarily associated with management and administration of the park, and have been present since 1960. Each is character-defining for the park landscape, and contributes to its significance. The cemetery is the only use surviving from the Carver period. Several other land uses associated with the property during Moses Carver's ownership are no longer present, including agriculture, mineral extraction, and residential. One other land use associated with the early park development period is no longer active: park housing. Conservation efforts to restore native grassland prairie restoration constitute a non-contributing land use.

Cemetery. Located approximately 250 yards southwest of the site where Moses Carver built his log cabins stands the Carver family cemetery, established during the mid-nineteenth century. Comprised of a perimeter wall encompassing several grave sites, the cemetery extends over approximately one-tenth of an acre (Figure 69). The cemetery includes marked and unmarked graves, including those of Moses and Susan Carver. Although the cemetery was altered by the Shartel family through removal of the original rock perimeter wall, the cemetery use survives from the Carver period. The cemetery is interpreted along the Carver Trail and helps to connect the property with the life of George Washington Carver, who would have known the cemetery. The cemetery land use contributes to the significance of the park landscape.

Commemoration. Commemorative land uses have been associated with the park since its establishment. The park as a whole commemorates the life and achievements of George Washington Carver. In addition to the park, two sculptural works commemorate and honor Carver within the park. These works—the George Washington Carver bust and the Boy Carver statue—date to the early park development period. Commemorative land uses thus contribute to the significance of the park landscape.

Commerce. Commercial land uses are primarily associated with the gift shop in the visitor center. These commercial uses are administered by the Carver Birthplace Association, and have been present within the park since the establishment of the first visitor center during the early park development period. The commercial land use survives from the period of significance and contributes to the significance of the park landscape.



FIGURE 69. The Carver family cemetery constitutes a cemetery land use that survives from the mid-nineteenth century.

Interpretation/museum/education. Interpretive land uses have been an essential component of the park since its earliest establishment. The Carver Trail was one of the first elements established for the enjoyment and edification of visitors. The role of interpretation has grown over the years, as have the wayside exhibits and other programs offered by the park within the visitor center and the landscape (Figure 70). Interpretive land uses survive from the period of significance and contribute to the significance of the park landscape.



FIGURE 70. Interpretive signs are located along the Carver Trail.

Maintenance. Park maintenance activities are clustered in a building and grounds complex located south of the visitor center (Figure 71). The maintenance facility was established with the visitor center in 1960. Maintenance activities have been a component of the park since its early establishment, and this land use thus contributes to the significance of the park landscape.



FIGURE 71. The maintenance yard, south of the visitor center accommodates necessary maintenance land uses.

Park administration. Park administrative offices are currently housed in the visitor center. Offices were constructed as part of the original visitor center, but moved to the housing complex while the visitor center was expanded. The offices were relocated to the expanded visitor center in 2010. Park administration land uses have been a component of park operations since early park development, and continue to contribute to the significance of the park landscape today.

Recreation. Like interpretation, recreation has been a key land use of the park since its early establishment. The Carver Trail affords both recreational and interpretive opportunities, and has done so since circa 1953. This recreational land use survives from the period of significance and contributes to the significance of the park landscape.

Utility. Since the early park establishment period, utilities have been an essential component of park operations, including water, sewer, gas, telephone, refuse collection, and electrical services (Figure 72). Although the specific features built to support park utility needs have changed over time, this land use survives from the early park development period of significance and contributes to the significance of the park landscape.



FIGURE 72. Overhead electrical lines in the southwest portion of the site represent a utility land use.

Visitor services. Visitor services, such as ranger contact, restroom facilities, and drinking fountains, are afforded in the visitor center, while picnic tables and a drinking fountain are available in the picnic area near the parking area. Visitor

services have been part of the park since the early park establishment period and remain so today. As such, this land use contributes to the significance of the park landscape.

Agriculture. The park was originally the site of the Moses Carver farm. The Carvers settled the land in 1838, the same year that Newton County was formed, beginning a process of clearing and cultivating crop fields, and establishing pastures and orchards. The Shartels continued agricultural use of the property, establishing thoroughbred cattle operations. After the national monument was established, fields were maintained by local farmers through lease agreements. Agricultural land uses were slowly discontinued after the park initiated a prairie restoration program in the early 1980s. Nothing remains of the former fields or the orchards on the property. Agricultural land uses are missing from the park landscape today.

Farming and stock raising remain important land uses within the landscape that surrounds the park. The Winter family, owners of the adjacent farm, were neighbors of Moses Carver. They continue to operate the farm across the road. Cattle grazing and other agricultural activities on lands within the vicinity of the park contribute to its historic setting.[293]

Park Housing. Housing facilities were constructed as part of Mission 66 improvements made within the park in the late 1950s and early 1960s. The three buildings, designed to accommodate park personnel, were used between circa 1960 and circa 1978. However, they are currently unoccupied and slated for demolition. The park housing land use, present during the period of significance, is missing from the park landscape today.

Mineral extraction. During the early- to mid-twentieth century, a 30-acre portion of the original Moses Carver farmstead was used to extract lead and zinc from the mineral rich local geology. Mining on the property continued until circa 1943. This historic land use is missing within the park today.

Residential. The Moses Carver family is known to have resided on the Moses Carver farm during much of the nineteenth century. Two additional residences were present on the property during the late nineteenth and early twentieth centuries. These included the William and Gilmore farmhouses. The property subsequently served as the residence of the Shartel family. The last resident of the property was a caretaker engaged to oversee the property after its initial acquisition by the federal government. Once the park was established, residential land uses were replaced by park housing; both are now missing from the park landscape today.

Conservation. The Moses Carver farm encompasses several natural resources of high quality and value, including native plant communities and water resources. Although none of the plant communities are pristine examples of pre-settlement vegetation, the successional woodland and restored prairie are being managed for natural resource values. The extensive prairie restoration program initiated in the 1980s constitutes a conservation land use. This use postdates the period of significance and thus does not contribute to the significance of the park landscape.

Contributing Land Uses.

- Cemetery
- Commemoration
- Commerce
- Maintenance
- Interpretive/museum/educational
- Park administration
- Recreation

293. Toogood, 43.

- Utility
- Visitor services

Non-contributing Land Uses.

- Conservation

Missing Land Uses.

- Agriculture
- Park Housing
- Mineral extraction
- Residential

3.3.7 Cultural Vegetation

There are several examples of cultural vegetation presently associated with George Washington Carver National Monument that were established by the National Park Service to enhance the aesthetic and interpretive value of the park. Ornamental planting beds with trees, shrubs, and perennials at the park entrance and along the entrance road, foundation plantings around the visitor center, and planting beds edging the walks in the environs of the visitor center, are designed to enhance the appearance of the park and honor the memory of George Washington Carver (Figure 73 through Figure 76). The park has also planted native forbs along portions of the Carver Trail to contribute aesthetic and interpretive value.

Some of the cultural vegetation located within the park, such as walnut tree hedgerows and a demonstration garden exhibit near the Moses Carver house, is designed to recall features of the Moses Carver farm for interpretive purposes (Figure 77 and refer to Figure 55). In 1983, the park also attempted unsuccessfully to cultivate a persimmon grove to recall a favorite memory of George Washington Carver. Since the 1960s, the park has actively planted native trees, such as black walnut, oak, maple, black gum, oak, yellowwood, and Kentucky coffeetree, to replace trees lost to disease and weather events.



FIGURE 73. Ornamental planting beds along the east facade of the visitor center.



FIGURE 74. Ornamental plants along the breezeway connecting the visitor center and maintenance building.



FIGURE 75. An ornamental plant bed in the visitor center parking lot planted by a local gardening club and maintained by park personnel and volunteers.



FIGURE 76. Ornamental plant beds edged by stone surrounding the brick entrance piers.



FIGURE 77. A demonstration garden exhibit in the vicinity of the Moses Carver house.

No examples of cultural vegetation survive from the period during which the Carvers owned the property. Missing cultural vegetation from this period includes cultivated crops, pasture grasses, rows of walnut trees used as hedgerows, and a large nut and fruit tree orchard thought to have contained at least 520 trees by 1880. The dwelling precinct is also thought to have included a kitchen garden surrounded by a picket fence and a small orchard. Another vegetation feature described in historic accounts of the property that is now missing is a black walnut tree referred to as the "hanging tree" thought to have a direct connection to Moses Carver. This tree was interpreted along the Carver Trail when the park first opened, although the tree soon died.[294]

The Shartel family appears to have planted the grove of shade trees that edges the park entrance road (refer to Figure 49). This grove has been incorporated into the park experience for visitors as a picnic area. The park regularly plants trees to perpetuate the grove.

Cultural Vegetation associated with the Moses Carver farm. Early settlers, like the Carvers, are known to have settled in this part of Missouri near fresh water sources and timber, often at the junction between timber and prairie land. The first crop fields were often located on level terraces of creek bottomlands where flooding had deposited fertile soils. To establish fields in these areas, settlers first had to remove the trees associated with gallery forests, often by cutting or

294. Ibid., 42, 73–74.

girdling. The rate that settlers were able to clear has been estimated at between two and three acres a year.

There were no fence laws in place at the time, and livestock were generally left to forage in the woodlands and on the prairies. The young offspring were often kept penned or tied near the house precinct to prevent the parents from wandering off too far. Rather than fence the pasture land, farmers fenced their fields to exclude livestock. Fences were typically constructed using split rails fashioned from the most rot-resistant timber, or using fieldstones removed from the crop fields. This kept livestock from trampling or grazing the crops.[295] No specific evidence of the cultural vegetation associated with the Moses Carver farm survives today within the park.

Fields, Pastures, and Woodlands. Moses Carver is known to have improved 100 acres of his farm by 1860, which involved clearing and plowing for cultivation and other activities. The agricultural census for that year indicates that Moses Carver grew Indian corn, wheat, oats, Irish potatoes, hay, flax, and rye, much of which would be fed to his livestock during the winter, or sold or consumed by the Carver family and work hands.[296]

By this time, farmers had begun to abandon bottomlands and terrace fields in favor of upland prairie after exhausting the bottomland soil and struggling with farming flood-prone zones. Abandonment of crop fields along stream corridors led to successional changes in the plant communities there. Persimmons, sumac, and cherry, common early colonizers of old fields, likely became prevalent.

The 140 acres of unimproved land remained an important source of wild foods that were collected for consumption by the Carvers, George, and his brother Jim. Walnut trees grew naturally in the area, but apparently were also planted by Moses Carver; the timber made good fences, flooring, inlay and trim. Walnut trees were also often planted around house precincts to help reduce yard maintenance as walnuts emit a toxin from their roots that inhibits the growth of other plant species.

In Newton County, farmsteads like the Carver farm experienced significant change during the latter part of the nineteenth century due to the emancipation of slaves, and the emergence of the mining and cattle industries. Zinc and lead mining operations provided a ready market for fruit, vegetables, and livestock. The Carvers likely used at least part of their farm for commercial rather than subsistence agriculture.[297]

By 1875, the area population had reached 12,000 and the mining and cattle industries were well established. Many farms adapted by increasing the number of acres in production by converting prairie into crop fields and improved pasture. George Washington Carver's recollection of persimmon trees on the farm would be consistent with these changes. Short leaf pine, oaks, and hickories slowly disappeared, replaced by hackberry, elm, honey locust, and black walnut tree, along with Osage orange. The Osage orange was introduced into the region for fencerows, but quickly became an invasive nuisance. The understory of returning woodlands was much denser than the earlier gallery forests.[298] By the late 1870s, there was likely little undisturbed prairie left on the Moses Carver farm.

Although some of the plants known to the Carvers remain present on the property today, the composition of the pastures and woodlands are not consistent with those present during the Carver period, and the field, pasture, and woodland features associated with the Moses Carver farm are all missing from the contemporary landscape.

Fescue was introduced to the area in the late nineteenth century, and quickly became popular for pasture use. Fescue continues to be associated with the lead and zinc mine site, and many of the farms located near George Washington Carver National Monument. It was not likely a

295. Harrington et al., 58.
296. Toogood, 41.
297. Harrington et al., 63.
298. Ibid., 65.

component of the farm until the latter part of Moses Carver's tenure of the farm.

Cultural Vegetation associated with the Shartel farm. The Shartels removed many of the features of the Moses Carver farm, including the rows of walnuts, the field stone walls, the orchards, and the remains of the Williams house and other dwelling precincts, including associated gardens.[299] The Shartels are known to have raised thoroughbred cattle on the property. All of the fields were likely converted to cool-season grasses under Shartel ownership to support pasturage.

Cultural Vegetation associated with Park Activities.

Native tree plantings. When the National Park Service acquired the property in 1952, it contained groves and woodlands of native trees and along the Carver and Harkins branches. These form the basis for the existing riparian communities. The park recognized the importance and value of these native woodlands, and actively perpetuated the tree plantings.

In 1963, the park superintendent noted the value of the park's vegetation to visitors:

> Academic groups are increasing in visitation to the area. The emphasis is on the educational information to be obtained from the birthplace. This seems feasible as the Carver story is connected with education, and the good plant identification and the great variety of native plants on the area would tend to make these visits of interest to classes in history, botany, and the natural sciences. We have shown a decided increase in the area lies not as a picnic site, but in the educational benefits of our area.[300]

In 1964, college botany classes visited the park, using it like an outdoor classroom due to the variety and diversity of species present.[301]

One of the management concerns was the threat posed by the emerging Dutch elm disease to the park's large number of American and slippery elms. The 1961 Superintendent's annual report describes efforts conducted by the park to protect and treat the park's elm trees, which were part of the naturally occurring woodlands as well as the picnic grove. The report suggests that the park adopted a spray program to protect surviving trees from the elm bark beetle. Throughout the 1960s, the Superintendent's annual reports continue to mention this area of concern. In 1967 alone, the park reported that 27 out of a total of 150 surviving mature elms were infected with Dutch elm disease and had to be removed. By the early 1970s, the park began to realize that it was no longer able to care adequately for the failing trees, and in 1973 ceased treatment programs.[302] The last American elm was removed from the park in 1978.[303]

Throughout the 1960s and 1970s, the Superintendent's annual reports also note the addition of native trees to replace the lost elms and other trees that succumbed to age, storms, and other natural causes. Superintendent annual reports repeatedly mention the loss of trees during storms. For example, in 1973, severe storms uprooted 100 trees. Another storm the following year uprooted another 100 trees.[304]

Replacement plantings appear to have been focused along the Carver Trail and in the picnic grove. Care was also taken to prune and treat surviving trees. Some trees were transplanted from the wild. Several native species were listed as being planted on a regular basis, including oak, dogwood, redbud, maple, yellowwood, black gum, and Kentucky coffeetree.[305]

In 1984, the park contracted for a study of the Prairie-Woodland Ecotone that would result in recommendations for park management. It was envisioned that this study would help define the historic scene associated with the Moses Carver period of ownership. As the park embarked on its

299. Ibid., 66.
300. Superintendent's Annual Report, 1963.
301. Superintendent's Annual Report, 1964.
302. Superintendent's Annual Reports, 1972, 1973.
303. Superintendent's Annual Report, 1978.
304. Superintendent's Annual Reports, 1972, 1973.
305. Superintendent's Annual Report, 1967.

prairie restoration program, it was considered important to determine which portions of the property should remain in woodland based on an understanding of site ecology as well as historic land management. This study was seen an important tool in that process.[306]

In 2002, a seasonal forestry technician and two Youth Conservation Corps (YCC) worked on revegetation of the woodlands surrounding the areas of the Carver Trail in the process of being rerouted.[307]

These tree plantings postdate the period of significance and do not contribute to the significance of the park, although they are associated with the park's ongoing efforts to establish an aesthetic designed to honor George Washington Carver.

Restored native grassland prairie. As noted earlier, the park currently manages 130 acres as restored grassland prairie. The park is divided into nine prairie management units that reflect a combination of field location, soils, and past land use. The restored prairie falls within the former agricultural fields of the Moses Carver and Shartel farmsteads. It has been based on more than 35 years of work conducted by the National Park Service in conjunction with several partnering organizations. The prairie program was intended to more effectively recreate the historic scene while protecting resources within the park.

The first effort conducted by the park to restore native grassland prairie involved a study conducted in 1975 by Dr. Robert Landers, who identified a 10-acre area he thought contained remnants of native prairie grasslands.[308] Based on his study, the park initiated plans to use prescribed fire to manage the parcel as part of a 1977 Historic Resources Management Plan. The Superintendent's annual report of 1977 noted that the field lease program was anticipated to change based on this decision. The Missouri Conservation Department Field Service Agent visited the park to assist with prairie and wildlife habitat enhancement.[309]

In 1981, the park prepared a fire management plan and prescribed burn plan and signed a fire agreement with Missouri State Conservation Commission in anticipation of the new field management plan to restore native grassland prairie.[310]

In 1982, the park conducted its first application of prescribed fire to manage the prairie restoration parcels, which were expanding in size each year. The prairie was later disked and native grasses planted. The park installed a prairie restoration exhibit for the benefit of visitors to explain the change in land management. Later that year, the park prepared a Prairie Restoration Action Plan; as part of the plan, fixed point photographs were taken on a monthly basis to create a record of the program's progress.[311]

In 1983 and 1984, the park continued using prescribed fire to manage four of the six prairie units, while reseeding was completed in another. Although agricultural special use permits were renewed, the park began to plan for a phased conversion of cropland to native grasses using a hay management program.

In 1984, the State of Missouri provided seed for the endangered Meades milkweed as part of a cooperative program to establish the plant with the park.[312]

In 1985, the park finalized plans for seeding an additional 60 acres of prairie, while exotic species control efforts were conducted through a program set up with the Missouri State Conservation agent.[313]

In 1986, prairie restoration efforts involved monitoring and removing woody invaders, while allowing certain species to remain that would

306. Superintendent's Annual Report, 1984.
307. Superintendent's Annual Report, 2002.
308. Superintendent's Annual Reports, 1972, 1975.
309. Superintendent's Annual Report, 1977.
310. Superintendent's Annual Report, 1981.
311. Superintendent's Annual Report, 1982.
312. Superintendent's Annual Report, 1984.
313. Superintendent's Annual Report, 1985.

support the desired future condition—a savanna type ecosystem.[314]

In 1988, 1989, 1990, and 1991 the park continued its use of prescribed fire to manage the prairie restoration process.

In 1991, the Newton County 4-H Council provided prairie grass seed, which was used to seed portions of management units 5 and 6. Units 1 and 4 were hayed, and the prairie hay donated to support the activities of the Council. Prairie units 1, 2, 3, 4, the east half of 7, 7A, and 7B were also burned in conformance with the Prairie Management Program. Woody species, primarily sumac, were cut and treated with the herbicide garlon. Units 5 and 6 were mowed to control less desirable annuals and exotics. Most of unit 6 was plowed, disked, and seeded in an attempt to improve the composition of native warm season grasses.[315]

In 1992, prairie management efforts included prescribed burning of units 5, 6, and 7, and haying of units 1, 2, 3, and 4 west of the walnut fence row. Units 3, 5, 6, and 7 were also mowed to control woody growth. To further support visitor understanding of and appreciation for the prairie restoration program, the park began offering prairie walks on Prairie Day.[316]

In 1994, the park continued vegetation monitoring within the prairie units, as well as mowing, and treating with herbicides. Work continued in this way through the remained of the 1990s.[317] Prescribed burns were conducted in 1995, 1997, 1998, 1999, and 2000.

Between 1998 and 2000, assistance was afforded by the Ozark Council, the natural resource office at Wilson's Creek National Battlefield, and the state. The 4-H Council also continued to work with the park, haying 350 bales of prairie grass and removing a large area of Japanese honeysuckle.[318]

In 2002, a seasonal forestry technician and two YCC employees were hired to control exotic species in the prairie units. Japanese honeysuckle, Johnson grass, Lespedeza, smooth sumac, and crown vetch in particular were targeted. In 2003, additional work to control exotics was conducted, and multiflora rose added to the list of targeted species. A fire management plan was initiated but not completed. Due to the lack of a fire management plan, the prescribed fire program was suspended. Without prescribed burns, the number of exotic plants observed as part of monitoring programs increased, along with hazard fuel loads.

Once the plan was put into place in 2005, the park was again able to use prescribed fire to manage the prairie restoration areas. In 2005, 69 acres were burned.[319] Additional use of prescribed fire occurred in 2006.

In 2007, haying and the use of prescribed fire was conducted in cooperation with Newton County 4-H Council and the Missouri Extension Office.[320] In 2008, prairie units 5 and 6 were burned. Also in 2008, the park began developing a Best Management Practices manual for the prairie restoration program.[321] Prescribed fire was used in 2010.

In 2011, prairie and woodland management areas encompassed 200 acres of the 240-acre park. Management practices included mowing, hand pulling, herbicide application, and prescribed fire.[322] In support of these efforts, the park prepared a Vegetation Management Action Plan with the assistance of the Exotic Plant Management Team, Heartland Network and Inventory Program. The plan also relied on the information afforded by a study prepared by Burfield and Nilon through the University of

314. Superintendent's Annual Report, 1986.
315. Superintendent's Annual Report, 1991.
316. Superintendent's Annual Report, 1992.
317. Superintendent's Annual Report, 1997.
318. Superintendent's Annual Reports, 1998, 1999, 2000.
319. Superintendent's Annual Report, 2004.
320. Superintendent's Annual Report, 2007.
321. Superintendent's Annual Report, 2008.
322. Superintendent's Annual Report, 2011.

Missouri at Columbia in 2011 titled *Integrated Vegetation Management Recommendations*.[323] Prescribed fire was also used to manage prairie restoration areas in 2012 and 2014.

The restored native grassland prairie areas within the park postdate the early park development period, and do not accurately reflect vegetation communities associated with the 1865–1877 period of significance. As such, they constitute a non-contributing resource.

Picnic grove. The landscape to the north of the entrance road is characterized by large grove of mature, deciduous, shade trees. The trees are irregularly and widely spaced, allowing turf to grow beneath them. The grove was likely planted by the Shartels, who owned the property between 1913 and 1953. Tree species include walnut, oak, sycamore, and hackberry. Elms were formerly an important component of the grove. American and slippery elms were lost in the 1960s to Dutch elm disease. The park actively replaces trees in the grove as they are lost. This grove, which has been used as a picnic area for the park since the early 1950s, survives from the early park development period and contributes to the significance of the park landscape.

Walnut fence rows. Moses Carver is thought to have planted walnut hedgerows in several locations around the farm as living fences.[324] One of these is thought to have existed between Carver Branch and the cemetery. In the early park development period, the National Park Service planted a row of walnuts along the Carver Trail as an interpretive aid to recall this element of the Moses Carver farm. This hedgerow survives from the early park development period and contributes to the significance of the park landscape.

Ornamental plantings along the entrance road. Ornamental plantings are associated with the park entry gate at Carver Road, and at the beginning of the loop. These plantings were installed by a local gardening group, and are maintained by park personnel and volunteers. The plantings include trees, shrubs, and ornamental grasses. These features postdate the early park development period and do not contribute to the significance of the park landscape. These plantings postdate the early park development period of significance and constitute non-contributing resources.

Ornamental plantings around the visitor center. Ornamental plantings were installed along the foundation of the visitor center and around the building environs circa 1959–1960 as part of the early development of the park. Many of the original plants died, however, soon after planting. In 1963, the Superintendent's annual report notes that replacements were planted around the foundation of the building, including sugar maples, oaks, walnut, dogwood, and redbud, as well as periwinkle vines.[325] In 1967, the roses in the beds at the entrance to the building were replaced.[326] Flower gardens were established in 1972 in honor of Carver's great love for flowers.[327] In 1973, the flower gardens sustained damage due to a tornado, and were later replaced.[328]

Later, ornamental plantings were added to help screen views of functional areas within the complex. In 1977, junipers were installed to screen heat pump units from view along the Carver Trail.[329] Evergreen privet shrubs were used to screen some fire hydrants.[330]

Ornamental plantings continued to be added around the visitor center in the 1980s, some to shade the building as an energy conservation measure.[331] The Superintendent's annual report for 1991 indicates that park maintenance personnel installed materials in new planting beds around the visitor center and additional trees to enhance the appearance of the visitor center complex.[332] In 1994, additional planting beds were installed in front of the visitor center and around

323. Nilon and Burfield.
324. Harrington et al., 63.
325. Superintendent's Annual Report, 1963.
326. Superintendent's Annual Report, 1967.
327. Superintendent's Annual Report, 1972.
328. Superintendent's Annual Report, 1973.
329. Superintendent's Annual Report, 1977.
330. Superintendent's Annual Report, 1976.
331. Superintendent's Annual Report, 1980.
332. Superintendent's Annual Report, 1991.

the new comfort station, as well as elsewhere around the park's developed core.[333]

While some of the existing material may be similar to that planted in 1959–1960, it appears that the majority of the shrubs and herbaceous plantings have since been replaced or are new features that respond to the visitor center expansion. The existing plantings thus postdate the early park development period and do not contribute to the significance of the park landscape.

Ornamental plantings at the park housing complex. The three park housing buildings constructed in 1959–1960 are edged by foundation plantings and other groupings of ornamental plantings designed to screen views of the complex from visitor use areas. These plantings were primarily composed of native tree and shrub species (Figure 78). Many of the ornamental plantings indicated in as built drawings from 1960 remain present on the site today.

Plantings were later used to screen views of functional areas within the complex. In 1977, Amure River South privet (*Ligustrum amurense*) shrubs, a non-native species, were planted around the fire hydrant near the Superintendent's residence for aesthetic reasons.[334] Plantings that survive from circa 1960 contribute to the significance of the park; later additions do not contribute.



FIGURE 78. Plantings associated with the housing complex were established at the same time as the buildings. Source: George Washington Carver National Monument photo collection.

Fescue fields. Fescue fields were an important component of the property during Shartel ownership, when the property was used to raise cattle. After the National Park Service acquired the property in 1952, it elected to maintain most of the fields in hay production to perpetuate the historic agricultural setting. The park entered into lease agreements with local farmers to maintain the fields in hay production. During the 1960s, the Superintendent's annual reports noted that agricultural land use contracts were issued to maintain 145 acres of the park in "their historical character as pasture or hay lands."[335] This continued until 1982, when the park began converting former cropland to restored native grassland prairie. The majority of the fields present in 1952 have since been converted to grassland prairie, and this cultural vegetation type is missing from most of the park. The 30-acre parcel where lead and zinc were formerly mined remains a fescue field. This fescue field was not part of the property during the early park development period, and its character postdates the Moses Carver farm period and does not contribute to the significance of the park landscape.

333. Superintendent's Annual Report, 1994.
334. Superintendent's Annual Report, 1977.
335. Superintendent's Annual Report, 1967.

Kitchen garden exhibit. Associated with the Moses Carver house precinct is a kitchen garden exhibit where vegetables known to have been grown by the Carvers are featured in fenced beds. The 1975 Superintendent's annual report is the first to mention the use of demonstration gardens to interpret the plants studied by George Washington Carver.[336] It is not clear whether these are the same gardens as those present today near the Moses Carver house. The kitchen garden exhibit is maintained by volunteers.[337] This feature postdates the period of significance and does not contribute to the significance of the park landscape.

Carver family cemetery. There is no cultural vegetation associated with the Carver family cemetery. Traditional practices associated with cemeteries often included removal of all vegetation through sweeping, although grass likely was also present. Today, the cemetery is maintained in mown turf. Other vegetation is often removed from the cemetery. For example, a crew of Youth Conservation Corps stationed at Wilson's Creek National Battlefield traveled to the park in 1977 to remove vines and other unwanted vegetation from the rock walls of the Carver family cemetery.[338] The character of the cemetery is generally consistent with that present historically.

Missing Cultural Landscape Features.

Carver House domestic plantings. Moses Carver is known to have planted or maintained oak, hickory, elm, and black jack oak trees around his house.

Walnut fence rows. Carver also planted several rows of black walnut trees around the property, including a line west of the house, as hedgerows or living fences.[339] These features are all missing from the contemporary landscape.

Orchard. Moses Carver is known to have planted an extensive fruit and nut orchard on the property during the 1870s. By the 1880 census, the orchard was recorded as containing at least 520 trees.[340] The orchard was removed by the Shartel family after 1913. No evidence of the orchard remains on the property today.

Kitchen garden. In southwest Missouri, most settlers raised a variety of food crops for family consumption in kitchen gardens, usually small fenced plots, located near the dwelling. Vegetables, herbs, and fruits often grown in these kitchen gardens included white or Irish and sweet potatoes, sage, red pepper, string beans, roasting ears, onions, peas, pumpkins, squashes, cabbages, turnips, and beets. Many gardens also included fruits such as watermelon and musk melon. Archeological evidence suggests that there was an orchard just west of the Carver cabin.[341]

The agricultural census records the Moses Carver farm as specifically growing Irish potatoes. Carver's nephew James Robinson recalled Moses "planted in the same spot every year." Neighbor Elza Winter noted that Carver grew gourds shaped like pumpkins for water and sugar containers. He indicated that the vines grew along Carver's picket fence, which likely enclosed the garden to protect it from the grazing stock.[342]

Persimmon grove. Moses Carver had a grove of persimmon trees on his property, and George Washington Carver described finding persimmon fruits on the farm. Park interpreters share the story of George recalling how he would sneak out of the cabin to eat persimmons, and get caught. Unfortunately, nearly all of the persimmon trees have died through the years, and very few remain within the park landscape today.

Hanging tree. The hanging tree was a large black walnut located on the knoll overlooking Carver Branch. The tree was the focus of a legend suggesting that thieves came onto the Moses Carver property, captured Moses Carver, and hung him by his thumbs from the branches of this tree to encourage him to divulge the location of a

336. Superintendent's Annual Reports, 1975, 1976, 1977.
337. Superintendent's Annual Report, 2003.
338. Superintendent's Annual Report, 1977.
339. Toogood, 27–28.
340. Ibid., 43.
341. Harrington et al., 66.
342. Ibid., 41.

rumored buried cache of money, which he refused to do. Although the story remained unsubstantiated, the tree became an interpreted element within the park along the original Carver Trail. The Carver Trail passed the tree, and a sign interpreted its history during the early park establishment period. Soon after the park opened, however, the walnut tree referred to as the hanging tree died.[343] The National Park Service attempted to prolong the interpretive role of the tree by treating it with preservative chemicals before having to remove it. No evidence of the hanging tree remains within the park today, although a section of the tree is retained in the park's museum collections (Figure 79).[344]



FIGURE 79. The "hanging tree" died soon after the park opened. Source: George Washington Carver National Monument photo collection.

Contributing Cultural Vegetation.

- Replanted walnut hedgerow
- Ornamental plantings at the park housing complex
- Picnic grove

Non-contributing Cultural Vegetation.

- Native tree plantings
- Restored native grassland prairie
- Ornamental plantings along the entrance road
- Ornamental plantings around the visitor center
- Rose plantings and other ornamental plantings around the visitor center
- Fescue fields

Missing Cultural Vegetation.

- Carver House domestic plantings
- Orchard
- Kitchen garden
- Persimmon grove
- Hanging tree
- Walnut hedgerows
- Fields, pastures, and woodlands

343. Toogood, 42.

344. Personal communication, Lana Henry, 75% draft CLR review comments, April 2014.

3.3.8 Circulation

Circulation associated with George Washington Carver National Monument ranges from improved and unimproved vehicular roads and parking, to pedestrian walks, paths, and trails. The vehicular systems include the park entrance road and associated parking areas, the spur road to the picnic area, maintenance area access and parking, the housing complex entrance, access road, and parking, and an internal system of two-track farm lanes that provide access to much of the park for maintenance and law enforcement purposes. Pedestrian circulation features include concrete walks associated with the entrance road and parking, the entrance into the visitor center; the Carver Trail; and the Contemplative Loop Trail.

Park entrance road and visitor parking area. The park entrance road extends into the park from Carver Road. The entrance itself is marked by ornamental shrub plantings and brick piers set with metal gates (refer to Figure 59). The asphalt road passes through mown turf lawn set with large shade trees. Near the visitor center, the road splits to form a tear-drop shaped turn-around and drop off area, edged by two long bays of parking (Figure 80 through Figure 82).



FIGURE 80. The park entrance road passes the picnic grove.



FIGURE 81. Parking edges the road in the vicinity of the visitor center.



FIGURE 82. The entrance road features a drop-off area and looped return edged by parking.

The park entrance road and the southern bay of the visitor parking area were developed as part of the Mission 66 improvements made to accommodate visitors in 1959–1960. Weidman Industries, Inc., constructed the asphalt-paved entrance road and parking area, while Jones Construction Company built the entrance gate, signs, and fencing. All of the above facilities were completed in time for the July 1960 dedication of the visitor center (Figure 83).[345] Prior to 1960, the park was accessed using the farm road established by the Shartels, which followed a similar alignment (Figure 84 and Figure 85). The Shartel entrance road was flanked by stone piers and wood fencing, and surfaced with gravel and hard-packed earth.



FIGURE 83. The Shartel entrance road was flanked by stone piers. Source: George Washington Carver National Monument photo collection.



FIGURE 84. The park entrance road prior to Mission 66 improvements. Source: George Washington Carver National Monument photo collection.



FIGURE 85. The new road and entrance gate were completed in 1960. Source: George Washington Carver National Monument photo collection.

Although the entrance road has remained in the same location since its construction, it has been rehabilitated several times, and features associated with the road, such as the entrance sign, planting beds, and parking areas have been added or replaced since 1960. In 1974, the park road system was considered in poor condition, and was resurfaced in 1975.[346] In 1986, an additional parking area was added along the northern side of the loop.[347] The road was again repaved in 1989. In 1991, the park's roads, parking lots, and sidewalks were described as rehabilitated.[348]

The entrance road and southern parking area survive with integrity from the early park development period and contribute to the significance of the park landscape. The integrity of the road is diminished slightly by changes to its setting, such as a new park identity sign, planting beds, and the addition of the northern parking loop.

Maintenance area access road. An asphalt-paved maintenance area access road arises from the south end of the entrance road. The maintenance road provides access to the walled maintenance yard (Figure 86). A gravel-surfaced employee parking area edges the road to the south (Figure 87). An additional gravel-surfaced road extends north from the asphalt maintenance road,

345. Toogood, 70.
346. Superintendent's Annual Reports, 1974, 1975.
347. Superintendent's Annual Report, 1986.
348. Superintendent's Annual Report, 1991.

providing access to the rear door of the visitor center (Figure 88).

The maintenance area access road appears to have been constructed as part of the original visitor center and maintenance area development in 1960. Parking along the edge of the road was never formalized and occurs in an ad hoc manner by park employees.

The access road survives with integrity from the early park development period and contributes to the significance of the park landscape. The ad hoc parking postdates the period of significance, diminishes the integrity of the circulation feature, and does not contribute.



FIGURE 86. The maintenance area road arises from the south end of the entrance road.



FIGURE 87. A gravel-surfaced employee parking area edges the maintenance area access road to the south.



FIGURE 88. A gravel-surfaced road leads to the rear of the visitor center.

Picnic area spur road. The picnic area spur road leads north into the picnic area from the park entrance road (Figure 89). The asphalt-paved road curves through the grove, providing access to turf lawn set with picnic tables. The spur road ends in a small parking area located near the edge of the Carver Branch riparian corridor (Figure 90). The picnic area is described as present in 1953. It appears that the road was upgraded in 1984. The road survives from the early park development period with sufficient integrity to contribute to the significance of the park landscape.



FIGURE 89. The paved picnic area spur road leads north from the park entrance road.



FIGURE 90. The picnic spur ends in a small parking area.

Housing complex access road. Vehicular access to the housing complex arises from Carver Road approximately 300 feet south of the primary park entrance (Figure 91). Access to the area by the public is restricted by a metal gate (Figure 92). The asphalt road leads to the entrances of the three housing complex buildings, as well as the storage yard and fuel tank enclosure located to their south. Several small parking bays edge the roadway, which ends in a loop in front of the seasonal housing quarters (refer to Figure 94). Concrete wheelstops are located along the edge of each parking bay.



FIGURE 91. The housing complex road arises from Carver Road.



FIGURE 92. Access to the housing complex road is restricted by a metal gate.

The housing complex access road and parking area, was completed in May 1959 along with the buildings (Figure 93).[349] The original parking facilities were enlarged in 1979 near the seasonal housing building to accommodate administrative office use.[350] An additional parking area was installed across from the Historian's residence in 1989. The turn-around loop was widened at the same time. The changes that have been made to the original configuration diminish the integrity of the access road.

The access road survives with diminished integrity from the early park development period and contributes to the significance of the park landscape.



FIGURE 93. The sidewalk and parking area at the Superintendent's residence in 1959. Source: George Washington Carver National Monument photo collection.

349. Toogood, 70.

350. Superintendent's Annual Report 1979.



FIGURE 94. The road ends in a loop in front of the seasonal housing quarters.



FIGURE 95. Several unpaved farm lanes or two-track roads arise from the south edge of the maintenance area access road.



FIGURE 96. The Carver Trail arises from a gravel landing north of the visitor center.

Internal access roads. Several two-track grass and gravel surfaced roads extend throughout the property presently used by the park to maintain fields, boundary features, and woodlands. Access to the system of access roads arises from the western end of the maintenance area access road. The access roads are not open to the public (Figure 97 and refer to Figure 95). Access to the two-track roads is also afforded from gates in the park boundary fence (Figure 98). The farm lanes generally follow the park boundary and treelines, although others cross restored grassland fields. Access roads are present in the southwest corner of the park, on the site of the former zinc mine, an area that is also used to house a slash pile (Figure 99).

Some of these access roads may follow historic farm roads. For example, the North-South Road that follows the park's west boundary may be the same route noted in the 1841 General Land Office survey notes.[351] Further research is needed to compare these roads to historic documentation.

The existing access roads appear to reflect historic patterns and farm uses present at the time of park establishment and contribute to the significance of the park landscape.



FIGURE 97. The grass or grass and gravel-paved two-track roads allow access to the larger park landscape.



FIGURE 98. Gates in the park boundary fence provide access to several of the unpaved two-track roads.



FIGURE 99. Several access roads are located in the southwest corner of the park in the vicinity of the former zinc mine.

Carver Trail. The mile-long Carver Trail winds through the park's developed core. The trail arises from a trailhead north of the visitor center. Along the trail, visitors pass a succession of features, including a bronze dedication plaque, an exhibit interpreting Carver's birthplace site, Carver Spring, the Boy Carver statue, Williams Pond, the circa 1881 Moses Carver house, the Carver family cemetery, and the Carver bust. The trail was one of the first amenities established by the National Park Service at the park. It is meant to link cultural and natural features on the site with George Washington Carver's early life on the farm.

Materials used to surface the trail vary. Near the visitor center, the surface is gravel (Figure 96). A queuing area composed of concrete block marks the trailhead (Figure 100). The trail continues with a rubberized surface set over concrete

351. CLI, 37.

(Figure 101). As the trail traverses the steep slope of the Carver Branch ravine, it is paved with asphalt, and configured as a switchback that is edged by low stacked stone walls. Boardwalks and small wooden footbridges elevate the trail over wet areas associated with the Carver Spring and Carver and Williams branches (Figure 102 and Figure 103). Two prefabricated steel and wood plank bridges convey the trail over Carver Branch in separate locations (Figure 104). The first is located near the Boy Carver statue, while the second is located south of the Moses Carver house (Figure 105 and Figure 106). Other parts of the trail are surfaced with gravel (Figure 107 through Figure 109). A concrete amphitheater-like plaza encircles the Carver bust, and includes concrete stairs (Figure 110).

The graveled area outside the north entrance to the visitor center features a series of paths that link the beginning and end of the Carver Trail, and the concrete walk that edges the visitor center.



FIGURE 100. A concrete-block queuing area marks the Carver Trail trailhead.



FIGURE 101. A portion of the trail features a rubberized surface set over concrete.



FIGURE 102. A boardwalk elevates the trail over the wet area associated with Carver Spring.



FIGURE 103. The trail is surfaced with gravel as it passes through the woodland, and is set with wooden footbridges where it passes over wet areas and ephemeral streams.

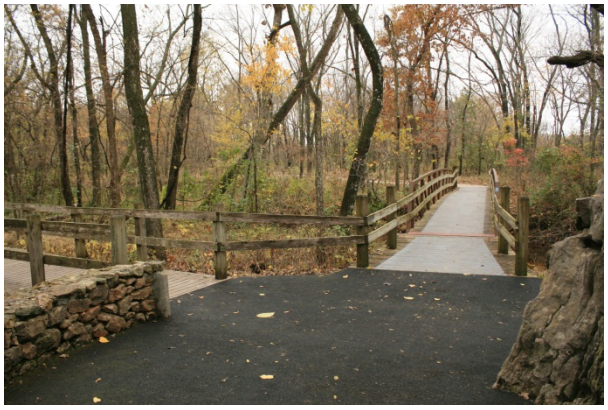


FIGURE 104. A prefabricated bridge conveys the trail over Carver Branch.



FIGURE 105. Boardwalk is used where the trail crosses the confluence of Williams and Carver branches.

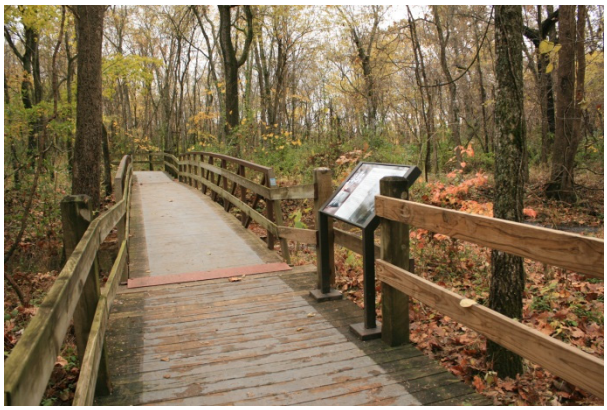


FIGURE 106. A second prefabricated bridge crosses the confluence of Carver and Williams branches.



FIGURE 107. Gravel surfacing is used where the trail passes out of the woodland and follows the walnut hedgerow.



FIGURE 108. The trail passes close to the cemetery.



FIGURE 109. The trail narrows as it passes through the prairie and turns east toward the visitor center.



FIGURE 110. A concrete plaza and stairs edge the Carver bust and mark the culmination of the Carver Trail.

Contemplative Loop Trail. This trail is a one-quarter-mile side trail of the Carver Trail that encircles Williams Pond. It is designed to provide a quiet experience meant to evoke the spiritual and philosophical aspects of Carver's life. Stone benches and polished granite blocks inscribed with quotes from George Washington Carver's speeches and writings are set along the trail to

foster quiet reflection (Figure 111). The trail is variously surfaced with wood chip mulch and leaf litter as it passes through the trees surrounding the pond, and a mown grass surface where it passes over the earthen dam on the west end of the pond. A wood-edged recycled plastic plank boardwalk carries pedestrians over a wet area south of the pond (Figure 112).



FIGURE 111. The Contemplative Loop Trail arises from the Carver Trail and leads around Williams Pond.



FIGURE 112. A wood-edged boardwalk conveys the trail over a wet area on the south side of the pond.

The Carver Trail was one of the earliest features developed at the park to connect visitors with George Washington Carver's historic associations with the property. Initially known as the Carver Childhood Trail and the Carver Nature Trail (Figure 113), it was intended ". . . to help visitors understand Carver and experience nature the way he experienced it from childhood.[352] Interpreted along the route was the original slave cabin, the hanging tree, open fields associated with the Moses Carver Farm, Carver Spring and Branch, the Moses Carver house, a walnut fence row, and the cemetery. Native trees and wildflowers were labeled for the benefit of visitors. Later, the Boy Carver statue would be added near the spring.[353]



FIGURE 113. The Carver Trail pictured in August 1963. Source: George Washington Carver National Monument photo collection.

The trail as originally installed extended from an overlook terrace atop the knoll east of Carver Branch, and formed a large looping circle similar to the trail today. The Boy Carver statue was sited in 1960 along a gravel pavement, and the Carver Branch crossing occurred via a wooden bridge.

By 1963, the National Park Service began to identify problems with the trail and to develop plans to improve it. In 1964–1965, the park was able to secure sufficient funding to resurface the trail, relocate a problematic section, and add a new rustic bridge for the Carver Branch crossing (Figure 114). However, a storm later that year washed out rock work added to support the bridge. The park subsequently paved the nature trail from the visitor center to the Carver Branch to protect visitors from wash outs and slippery surfaces approaching the stream (Figure 115).[354]

352. CLI, 23.
353. Toogood, 68.
354. Ibid., 73.



FIGURE 114. The wooden bridge crossing Carver Branch in 1964. Source: George Washington Carver National Monument photo collection.



FIGURE 115. The trail was paved from the visitor center to Carver Branch in 1964. Source: George Washington Carver National Monument photo collection.

The trail continued to exhibit problems, however. In 1981, an assessment suggested that handrails were needed along steeper slopes, the bridges were in need of repair, and more benches were desired.[355] Although the trail was repaired in 1982, a storm in 1983 washed out both bridges, and damaged the pavement.[356] In 1984, the Missouri Army National Guard built four new bridges and an accessibility ramp, while the trail was again repaired and resurfaced.[357] In 1988, a prefabricated steel bridge was installed to accommodate the crossings of Carver Branch. Sections of the trail were again reconfigured and resurfaced in 1991.

In 1994, an accessible comfort station was installed near the visitor center. To provide access to the building, the park built new sidewalks and extended the Carver Trail.[358]

In 2001, 400 linear feet of asphalt walk were replaced with a 4-inch-thick concrete sidewalk overlaid with recycled rubber surfacing, and accessibility improvements were made between the cabin site and the spring and near the confluence of the two streams using boardwalk. Two new prefabricated steel arched bridges were installed across Carver Branch to allow for the safe passage of the visiting public. The trail was also expanded in 2001 to include the 1/4-mile Contemplative Loop Trail around Williams Pond. The trail followed a mown grass route that had been established as early as 1979. New base rock and pea gravel were added to the trail surface.[359]

In 2002, additional work was done on the trail to correct safety hazards, including addition of 50 tons of native rock, fill dirt, and topsoil to reshape the terrain in order that it did not exceed a 4:1 slope. Sections of recycled plastic boardwalk were installed as part of an Eagle Scout project.[360]

In 2008, the park again undertook accessibility improvements for a 0.3-mile-long segment of the Carver Trail, incorporating switchbacks below the cabin site to diminish the existing grade of 12 percent to 4.5 percent. A 150-foot-long dry stacked stone retaining wall was added on the uphill side of the trail.[361]

Based on consideration of these changes, the Carver Trail has been substantially altered since its original installation. Although it possesses diminished integrity of design, workmanship, and materials, the trail possesses sufficient integrity of location, setting, feeling, and association to

355. Superintendent's Annual Reports, 1981, 1982.
356. Superintendent's Annual Report, 1983.
357. Superintendent's Annual Report, 1984.
358. Superintendent's Annual Report, 1994.
359. Superintendent's Annual Report, 2001.
360. Superintendent's Annual Report, 2002.
361. Superintendent's Annual Report, 2008.

contribute to the significance of the park landscape.

Walks. Several concrete walks are present within the park. These are located in the vicinity of the visitor center and the housing complex. Concrete walks edge the large island created by the looped entrance road, and also edge the drop-off loop and the bus parking bays in the south parking area (Figure 116 and Figure 117 and refer to Figure 82). A wide concrete walk, lined with ornamental plantings, decorative benches, and quote stones, leads from the drop-off loop to the front entrance of the visitor center and around the north side of the building to the Carver Trail trailhead (Figure 118 and Figure 119). Another concrete walk links the drop-off loop to the covered breezeway between the visitor center and the maintenance building (Figure 120).



FIGURE 116. A concrete walk that edges the visitor center parking area.



FIGURE 117. Concrete walks also edge the large island created by the looped entrance road.



FIGURE 118. A wide concrete walk leads from the parking area to the front of the visitor center.



FIGURE 119. The wide concrete walk leads around the visitor center to the north, providing access to the Carver Trail trailhead.



FIGURE 120. A walk connects the drop-off area and the breezeway between the visitor center and the maintenance building.

Concrete walks connected the parking area with the visitor center as part of early park development (Figure 121). These have been altered and amended since 1960 to accommodate universal accessibility needs as well as the expansion of the visitor center. In 1981, the park assessed barriers to access for visitors. In order to meet access goals, the park identified a need to improve the restrooms and the north entranceway into the visitor center, which had been determined to be difficult to maneuver. In 1982, ramps were added to the visitor center entrance for enhanced accessibility. These were later removed. As part of the visitor center expansion, the walk system was reworked including access to the building and to its north. The present-day walks appear to follow similar alignments and configurations of the walks installed during the early park development period, but have since been replaced and possess diminished integrity of design, workmanship, and materials. They otherwise possess sufficient integrity to contribute to the significance of the park landscape.



FIGURE 121. Walks have been present along the road and parking areas since the early park development period. Source: George Washington Carver National Monument photo collection.

Concrete and asphalt walks link small parking bays with the concrete porches associated with the entrances into each of the three buildings in the housing complex. Wood ramps have been added to two of the three buildings (Figure 122). An additional concrete walk connects the two residences (Figure 123). Walks were installed at the Superintendent's residence and the Historian's residence at the time the buildings were constructed.

Concrete walks within the housing complex survive from the period of significance and contribute to the significance of the park landscape.



FIGURE 122. Walks and ramps allow access to the two of the former park housing residences, now used for storage.



FIGURE 123. A concrete walk links the two former residences in the park housing complex.

Walk in picnic area. A short concrete walk is located along the edge of the picnic area spur road, providing access to a universally-accessible drinking fountain and a water pump (Figure 124). The walk was added in 1993 and postdates the period of significance. As such it does not contribute to the significance of the park landscape.



FIGURE 124. A concrete sidewalk in the picnic area allows access to a drinking fountain.

Associated Circulation Features.

Carver Road. The park is accessed via Carver Road, which parallels the eastern edge of the park (Figure 125). Carver Road extends between Interstate 44 to the north and Iris Road to the south. It is a rural county road. Carver Road has afforded access to the park since its establishment.



FIGURE 125. Carver Road forms the eastern boundary of the park.

In 1956, the road approaches to the national monument were improved following Carver Day celebrations that indicated concerns regarding their condition.[362] The road may have remained gravel- or dirt-surfaced until the 1960s. In 1966, public access to the park was further enhanced when Carver Road was resurfaced with asphalt. The new surfacing extended to the southeast corner of the park. The work was completed as a cooperative effort between the Newton County Court and the Diamond Special Road District, based on the request of the park.[363] The road was again resurfaced in 1973 after being described as nearly impassable following a severe winter.[364] In 2005, the park received money to improve its road system and parking lots. The park used some of the funds to work with the Newton County Commission and park neighbors to improve four miles of road leading to the park from two state highways. The park also successful petitioned to have the speed limit in front of the park entrance reduced from 45 to 35 miles per hour.[365]

Elder Road. The park's south boundary edges an unimproved earth and gravel road known as Elder Road. Gates in the park boundary fence afford access from Elder Road in two locations.

Highways. Many visitors travel to the park from Exit 11A or Exit 18 off **Interstate 44**, or Exit 35 off Interstate 49. Both of these routes come within eight miles of the park. Exit 11A is located 5 miles to the west of the park, and connects to **U.S. Highway 71 south**, which in turn leads to **County Highway V**. Visitors follow Highway V south for four miles before reaching Carver Road.

These roads are also important routes that support visitation to the park. The significance of the birthplace along local highways began to be recognized in 1942 when the state installed a highway marker along U.S. Highway 71 near Diamond that noted the area to be the "Birthplace of George Washington Carver."

In 1994, the Superintendent's annual report noted that U.S. Highway 71 was in the process of being upgraded to interstate standards, with significant rerouting of large portions of the highway. It also noted that a new interchange would be situated five miles west of the park.[366] The park anticipated completion of the road corridor by the end of 1995.

George Washington Carver Historic Trail. The George Washington Carver Historic Trail was

362. Toogood, 76.
363. Superintendent's Annual Report, 1966.
364. Superintendent's Annual Report, 1972.
365. Superintendent's Annual Report, 2005.
366. Superintendent's Annual Report, 1994.

created as a joint effort between the Boy Scouts of America, the Ozark Council, and the park. It links Carver's birthplace with the school in Neosho that Carver attended in 1876. In 1975, park staff worked with the Boy Scouts of America to initiate the trail, which opened later that year.[367] In 1979, the Carver Birthplace Association placed a memorial marker in the yard denoting the property as the first public school George Washington Carver attended. The Association also placed a memorial marker in the yard of the home belonging to Andrew and Mariah Watkins where Carver lived while attending school in Neosho.[368] In 1995, additional planning, development, routing, signing, and reopening of the 10.2 mile trail was completed.

Missing Circulation Features.

Carver farm lanes. The Moses Carver farm likely included a primary entrance lane that connected the farm precinct with a nearby public road corridor, and internal farm roads that led to crop fields. No evidence of these circulation features exists today, with the possible exception of the north boundary road. It is thought that the present-day Moses Carver house, although it currently "faces east, on its original site it faced south—an orientation that exploited winter sunlight and provided a view of the country lane that once ran past the Carvers' front porch towards the family cemetery."[369]

Horse race track. John Harris, a former Diamond area resident interviewed to record his memories of the property, recalled that Moses Carver's neighbors brought their horses to the Moses Carver farm to race them on a one-half-mile track. Elza Winter remembered that " . . . Moses Carver got his money from raising race horses. Had a horse called Dog Legs because he was so ugly. Sold him. After that Dog Legs won races." No additional documentation of this feature has been located to confirm the presence of a race track on Carver's land.[370]

Contributing Circulation Features.

- Park entrance road and north parking area
- Maintenance area access road and maintenance yard area parking
- Access road leading southwest from the maintenance area through and around fields
- Internal access roads, including North-South Road (west boundary)
- Carver Trail
- Concrete walks associated with the housing complex and visitor center

Non-contributing Circulation Features.

- Staff parking area adjacent to the maintenance area
- Picnic area spur road and parking
- Concrete walk at picnic area
- Contemplative Loop Trail
- Steps and amphitheater associated with the Carver bust
- Wood ramps associated with park housing complex buildings

Adjacent and Nearby Circulation Features.

- Carver Road
- Elder Road
- Highways
- George Washington Carver Historic Trail

Missing Circulation Features.

- Carver farm lanes
- Carver horse racing track

367. Superintendent's Annual Report, 1975.
368. Superintendent's Annual Report, 1979.
369. Harrington et al., 26.
370. Toogood, 40.

3.3.9 Buildings and Structures

There are six buildings and fifteen structures located within the park. The only building that survives from the nineteenth century is the circa 1881 Moses Carver house. The other five buildings were constructed by the National Park Service in 1959–1960 to accommodate visitor uses and park operations. One of these—the park visitor center—was substantially altered and expanded in 2007 to better accommodate interpretive exhibits and protect museum collections. The other four—the maintenance building, Superintendent's residence, Historian's residence, and four-unit seasonal housing building—survive from the early park establishment period with sufficient integrity to convey their historic associations and contribute to the significance of the park landscape. The three buildings located within the park housing complex, however, are slated for removal.

Of the fifteen structures, four date to the early park development period and constitute contributing features. They are the rebuilt stone wall that encloses the historic Carver family cemetery, a pair of stone boundary markers, and a springhouse foundation. The remaining structures are contemporary additions that postdate the period of significance and do not contribute to the significance of the park landscape. They include a storage shed, dam, piers, gates, fencing, footbridges, and a stone wall. The date of origin of two additional maintenance-related structures has not been determined.

Buildings.

Moses Carver house (also Moses Carver Late Period Dwelling; LCS ID 000442; HS-05). The Moses Carver house is believed to have been built circa 1881 by Moses Carver, possibly in response to the loss of an earlier dwelling to a tornadic event. The house was originally located to the south of Carver Branch, but moved to its present location north of the stream corridor in 1916 by subsequent owners of the property. The 1-1/2 story L-shaped wood-framed structure has open covered porches at the front (east) and rear (southwest).

The three-room house has intersecting gable roofs covered in sawn cedar wood shingles. The exterior finishes and materials include painted wood clapboard siding with painted wood four-over-four double-hung windows, wood trim, fascia, corner beads, and rubble stone faced foundation walls. Other details include varnished wood porch floors, unfinished open riser wood steps to the front and rear porches, and two brick masonry chimneys (Figure 126 through Figure 131).



FIGURE 126. The Moses Carver house, view looking southwest toward the side and principal facade.



FIGURE 127. The Moses Carver house, view looking northwest toward the principal facade.



FIGURE 128. The Moses Carver house, view looking northeast towards the rear porch.



FIGURE 129. View of the rear porch stair and floor. The porch stairs were rehabilitated in 2014.



FIGURE 130. The front porch of the Moses Carver house.



FIGURE 131. Detail of the junction of the front porch and the main house showing the separation of siding and porch elements caused by settlement and movement.

The house is generally in good condition and is well maintained. The paint coating at exterior wood siding, trim, and window sashes is performing well, although the transparent porch floor finish is worn and in fair to poor condition due to wear and weathering. Some minor settlement has occurred since the building was rehabilitated in 2005. Evidence of this settlement occurs at the southwest and southeast corners of the house; the settlement is causing some separation of wood trim elements at the porch floors and wood siding (refer to Figure 131). The rubble stone masonry foundation is in good condition. It appears that the stone was repointed in 2005, but it is unknown if the entire foundation was rebuilt. The exterior wood doors are in good condition; they are somewhat protected from the elements by the cover offered by the porches. The open riser wood stairs are in fair condition and exhibit some wear and deterioration.

The house does not have an accessible route to the porches or to the interior. The existing steps and widths and sill heights of the historic doorways currently prevent universal access.

As noted by Harrington et al., in *Springs of Genius*, there is some reason to believe that the house

predates the 1881 construction date generally attributed to it. This date assumes that the house was built following destruction of an earlier dwelling by a tornado that swept through the area in 1880.[371] It is possible that this assumption is mistaken, and that the house could have been built during George Washington Carver's time on the farm. Harrington et al. suggest that the building's architectural style, construction materials, and building techniques all point to an earlier construction date. For example, the style of the house better reflects antebellum construction techniques, which had generally been replaced by the 1870s, as a mode of folk construction in Missouri, by balloon framing.[372] Harrington et al. also consider it possible that Carver built a new house earlier based on the wealth he had accumulated in the 1870s.[373]

According to the List of Classified Structures (LCS), the Moses Carver house was first rehabilitated by the National Park Service between 1952 and 1962. Based on review of superintendent annual reports, the building was in need of repairs and maintenance by the early 1960s. In response to the need for repairs, the National Park Service engaged Orville W. Carroll to prepare an HSR for the dwelling in 1964. Following completion of the HSR, the building was re-shingled, painted, and structural weaknesses repaired.[374]

In 1972, the Superintendent described a request for the services of a professional architect to assist the park in further restoration of the house.[375] In 1973, the house was described in poor condition and badly in need of repair and restoration. The park received funding for repair of the house in 1974, and work continued through 1976. The Jones Brothers Construction Company of Joplin was engaged to perform much of the work, which included setting the building on a new foundation.[376] In 1979, a copper roof was introduced on the rear porch of the house, and the floor of the porch was replaced. Interior floors were treated with preservative.[377]

In 2005, the National Park Service conducted a second extensive rehabilitation effort that included installation of a new roof and porch, replacement of windows and siding, repainting the structure inside and out, removal of all lead-based paint, replacement of crumbling mortar in the chimneys, and replacement of the front and rear porches. Overseen by the National Park Service regional historical architect Al O'Bright, the project involved careful research and analysis, such as testing to determine the original paint scheme. Unfortunately, the newly painted siding served to attract squirrels. Deterring squirrels from destructively gnawing the wood proved to be a multi-year challenge.

It is believed that George Washington Carver visited Moses and Susan Carver in this house on at least one occasion—circa 1884—prior to his leaving for Tuskegee in 1896.[378] It is the only building in the park directly associated with his life.

In the early 1950s, the National Park Service included the Moses Carver house as an exhibit along the Carver Trail, creating a fenced yard precinct. The Moses Carver house survives with integrity from the early park development period in its current location and contributes to the significance of the park landscape.

Visitor Center (Building No. 21). The George Washington Carver National Monument Visitor Center is located at the west end of the park entrance road and parking loop. The building was constructed in 1959–1960 as part of the Mission 66 program. The original building was a low, one-story, brick and wood-sided building with cedar shake roofing. It contained 3,300 square feet of space, approximately 1,268 square feet of which were occupied by museum exhibits. A long

371. Ibid., 23.
372. Ibid., 25.
373. Ibid., 26.
374. Superintendent's Annual Report, 1964.
375. Superintendent's Annual Report, 1967.
376. Superintendent's Annual Reports, 1974, 1975, 1976.
377. Superintendent's Annual Report, 1979.
378. Toogood, 42.

overhang ran along the entire eastern side of the building, connecting the visitor center with a restroom building to the north and a maintenance building to the south. The restroom building was connected to the visitor center by a covered breezeway.

In 2007, the building was expanded and remodeled to accommodate educational/interpretive programming. The expansion involved adding space to accommodate a multipurpose room, humanitarian room, kitchen and storage area, science and history discovery areas, science and history focus areas, a theater, enlarged museum space, new offices, curatorial facilities, and other support-function areas such as a library-conference room and a computer room. As part of the expansion of the building, the heating, ventilation, and air conditioning systems were replaced, and a new power generator installed. The project entailed construction of a large two-story addition to the west side of the original visitor center and included the development of a new entrance into a main lobby located between the existing restroom building and the original visitor center (Figure 132 through Figure 138). In 2010, the administrative offices were completed in the expanded visitor center complex; park staff subsequently relocated from offices in the housing complex buildings to the new space.



FIGURE 132. View of the visitor center looking southwest.



FIGURE 133. View of the renovated visitor center entrance and entrance plaza.



FIGURE 134. View south of the breezeway connecting the visitor center and the maintenance building.



FIGURE 135. View looking northeast of the expanded visitor center.



FIGURE 136. View looking northwest of the original visitor center, foreground. Note the decorative limestone panels between the steel sash windows.



FIGURE 137. Detail showing the deteriorated siding and paint at the junction of the breezeway roof and the visitor center.



FIGURE 138. Detail of the warped and deteriorated wood siding and paint, as well as the damaged ridge vent, under the roof.

The surviving section of the original one story visitor center is clad with modular brick and painted shiplap cedar siding and is topped with a low slope roof. Windows in the original building are steel sash and arranged in horizontal bands, with limestone panels between each window group. The 2007 visitor center addition utilized jumbo brick veneer with a similar blend of brick colors as the original building, along with wood siding that matched the profiles of the original siding. Windows in the newly constructed areas are clad-wood units, either fixed or casement in operation. The new roofs have shallow slopes, matching the slopes of original roof elements. It appears that all roof surfaces received new asphalt shingles as part of the 2007 construction effort. The majority of the visitor center's doors and entrance systems are painted hollow metal with insulating glass at transoms and sidelights.

An open air breezeway or covered canopy connects the visitor center to the maintenance building. The breezeway canopy is constructed of exposed painted wood beams and columns, roof rafters and decking.

The visitor center is generally in good condition but contains some areas where materials are experiencing advanced deterioration. The brick masonry is in good condition, with no evidence of settling or deteriorated mortar. Limestone window sills and decorative panels, while containing some organic growth or dirt, are generally in good condition. The steel windows are in good to fair condition with some peeling paint and deteriorated sealant. New clad wood window units appear to be performing well and are in good condition. Three-tab asphalt shingles covering the roof are in good to fair condition. Most roof edges do not have gutters or downspouts and contain painted metal drip edging and wood fascia. Roof areas fitted with gutters and downspouts are located at the north and east entrance areas and at the high roof areas that drain to the courtyard between visitor center and maintenance building. The perimeter of these roof areas have half-round profile gutters and round downspouts painted to match the wood fascia. The majority of the wood fascia and metal drip

edges, gutters, and downspouts are in good condition, but paint failure is widespread. Wood siding is in various states of repair, from fair to deteriorated. Many areas of rotted wood siding were observed, especially at exposed high roof/wall junctions. The majority of the paint coatings at areas of wood siding was either faded or deteriorated. Other painted wood surfaces at underside of the eaves and the covered breezeway are in good condition.

Over the years, the building has required several repairs. In 1966, the superintendent reported having to make major repairs to the roof of the visitor center, which was leaking due to a built-in gutter.[379]

In 1979, park administrative offices were moved from the visitor center to the former Superintendent's residence. The larger office in the visitor center was converted into an audio-visual room, while the smaller office was converted for use by the interpreter. A vestibule was added to the front door of the visitor center at the time.

In 1994, an accessible restroom was installed in the vicinity of the visitor center, and changes were made in the Carver Trail to provide access to the new facilities.[380] In 1995, the visitor center heating, ventilation, and air conditioning system was upgraded.

The building expansion conducted in 2007 was preceded by review of the park's Mission 66 features for their historic significance and integrity. The Missouri State Historic Preservation Office determined that the collection of mid-twentieth-century features had been altered substantially since their original construction and did not possess sufficient integrity to render them eligible for listing in the National Register of Historic Places, and that they did not contribute to the national monument. The determination suggested that the proposed new construction would not have an adverse effect on the park.[381] The visitor center has been extensively altered since its original construction. It has lost integrity of design, association, materials, and workmanship. As such, it does not contribute to the significance of the park landscape.

Maintenance Building (Building No. 22). The maintenance building (Figure 139 through Figure 142) was constructed along with the visitor center in 1959–1960. As noted previously, it was built as part of the Mission 66 program.



FIGURE 139. The maintenance building, view looking southeast.

379. Superintendent's Annual Report, 1966.
380. Superintendent's Annual Report, 1994.
381 "Project Agreement, George Washington Carver National Monument, Remodel and Expand Visitor Center to Provide Multi-Purpose Facility and Storm Shelter," April 2004, File D22, ACF, GWCA, and Mark A. Miles, Deputy State Historic Preservation Officer, to Superintendent, 25 May 2004.



FIGURE 140. The maintenance building, view looking northwest from the maintenance yard.



FIGURE 141. The maintenance building, view looking northeast from the maintenance yard.



FIGURE 142. Detail of the deteriorated masonry wall surrounding the maintenance yard.

The maintenance building is a simple rectangular form capped with a gable roof. The one-story building is set into the hillside and contains offices and administrative areas along the northern side, and a high bay shop area accessible at south side. The south side of the building fronts a maintenance yard, which is encircled with a low brick masonry wall constructed of the same modular brick as the maintenance building and original visitor center. It is also edged by a small brick utility building (see below). Windows are steel sash units arranged in horizontal bands, with limestone panels between each window group. The shallow slope roof is covered in three-tab asphalt shingles and does not have gutters or downspouts. The roofs have painted metal drip edges and wood fascia. The overhanging roof eave has exposed rafters and dimension wood sheathing, very similar to the covered breezeway joining the maintenance building and visitor center. The majority of the maintenance building's doors and entrance systems are painted hollow metal with some glass as sidelights. The five overhead bay doors at the south maintenance yard are fiberglass.

The maintenance building is generally in fair condition but contains some areas which are experiencing advanced deterioration. Brick masonry is in good condition, with no evidence of settling or deteriorated mortar. Limestone window sills and decorative panels, while containing some organic growth or dirt, are also in good condition. Steel windows are in good to fair condition, with some peeling paint and deteriorated sealant. Three-tab asphalt shingles and the majority of the wood fascia and metal drip edges are in good condition, but paint failure is evident. The overhead doors appear to be operable and in fair condition. The low brick masonry walls surrounding the maintenance yard are in poor condition. Large areas of spalling masonry and eroded mortar are evident at the east and west sections of the enclosure wall.

In 2003–2004, the maintenance building, along with the visitor center and three residences, was assessed by the Missouri State Historic Preservation Office for its significance and integrity relating to the Mission 66 program. The building was determined not eligible for listing in

the National Register of Historic Places.[382] Nonetheless, this building survives from the early park development period with a good degree of integrity and contributes to the significance of the park landscape.

Utility building. The utility building is a small, one-story rectangular structure located at the southeast corner of the maintenance yard (Figure 143). Constructed of brick masonry to match the visitor center and maintenance building, the utility building has a low slope gable roof covered in three-tab asphalt shingles. A set of concrete stairs is located at the south wall, and the west wall contains a pair of hollow metal access doors. The building houses the main fire pump and emergency generator for the visitor center complex and contains the generator exhaust stack and multiple fire department connections at the south exterior wall. The building masonry, doors, roof, and fascia are in good condition. The building houses a fire pump and emergency generator. This equipment is no longer needed by the park.



FIGURE 143. The utility building, view looking northeast.

Superintendent's residence (Building No. 23). (Figure 144 through Figure 147) Located at the southeast corner of the park near Carver Road is a group of three Mission 66-era structures designed and constructed in 1959–1960. One of these, a single-family dwelling, is known as the Superintendent's residence. This one-story ranch-style rectangular structure was converted to the park headquarters in 1979. To accommodate office uses in the former Superintendent's residence, the garage was enclosed and finished, a six-space parking lot was constructed in front of the building, and a new concrete pad and step were added to the front of the building. Several changes were made to the interior.[383] The structure is currently being used as storage for surplus equipment and supplies, and is being considered for demolition. All administrative functions formerly located in the building were moved to the renovated and expanded visitor center in 2010.



FIGURE 144. The Superintendent's residence, view looking northwest towards main front door.



FIGURE 145. The Superintendent's residence, view looking east towards the rear deck.

382. Superintendent's Annual Report, 2003, Ibid.

383. Superintendent's Annual Report, 1979.



FIGURE 146. Detail of a deteriorated wood ramp and deck behind the Superintendent's residence.



FIGURE 147. Detail of the west gable showing the deteriorated fascia and roofing.

The Superintendent's residence is rectangular in plan with a low slope asphalt shingled gable roof covering the structure. The roof has deep overhanging eaves, typical of ranch style homes, and metal gutters and downspouts. The exterior walls are clad with embossed beige-painted steel lap siding with painted metal fascia and soffits. At the front of the residence, a large pressure treated wood ramp has been added to provide an accessible route to the main entrance. Two sets of concrete steps and stoops mark the main front door and a secondary entrance. At the rear of the residence, a large hexagonal wood deck has been added, along with a ramp to provide universal access at the rear of the structure. Windows are double hung design, either single or paired, with wood sashes. All window openings have been fitted with aluminum storm sashes painted in a dark brown color. All entrance doors have been retrofitted with newer steel clad doors with vision panel and lever type hardware.

The residence is generally in fair to poor condition. The siding, while mostly intact, shows signs of fading paint and deterioration. Some metal fascia panels are missing, and many are loose, allowing water into the cladding systems and causing deterioration of wood wall elements. Shingle roofing systems are also in fair to poor condition. Several loose and detached asphalt shingles are evident. Paint and sealant at the wood windows is also in poor and deteriorated condition. Both wood ramps and the rear deck contain organic growth and many warped and rotted members. Two large ground mounted HVAC units located at the rear of the house are ducted into the main house. These units are apparently still in use to provide heating and cooling to the residence but their age and condition is unknown.

In 2003–2004, this and the other Mission 66 era buildings were assessed by region and determined not eligible for listing in the National Register of Historic Places.[384] Nonetheless, this building survives from the early park development period and contributes to the significance of the park landscape.

Historian's residence (Building No. 24). (Figure 148 through Figure 151) Located directly west of the Superintendent's residence is the Historian's residence. This one-story ranch style rectangular structure is smaller in size but similar in configuration to the Superintendent's residence. Currently the structure is being used as storage for surplus equipment and supplies for the park. It is being considered for demolition.

384. Ibid.



FIGURE 148. The Historian's residence, view looking northwest towards the front door.



FIGURE 149. The Historian's residence, view looking east towards the rear of the structure.



FIGURE 150. Detail of the rear wood deck.



FIGURE 151. Detail of the rear wood deck.

The Historian's residence is rectangular in plan with a shallow slope asphalt shingled gable roof. The roof has deep overhanging eves and metal gutters and downspouts. The exterior walls are clad with embossed beige-painted composition wood fiber siding with painted wood fascia and soffits. At the front of the residence, a pressure treated wood ramp has been added to provide an accessible route to the main entrance. There is evidence of an in-filled garage door at the south wall where a rectangular section of siding does not match the adjacent siding. At the rear of the residence, two small rectangular wood decks have been added.

Windows are double hung design, either single or paired, with wood sashes. All window openings have been fitted with aluminum storm sashes painted in a dark brown color. All entrance doors have been retrofitted with newer steel clad doors with vision panel and lever type hardware.

The residence is generally in poor condition. The siding is deteriorated, with fading paint and areas of rot or deterioration. Wood fascias are warped and have severely deteriorated paint coating. Paint and sealant at the wood windows are also in poor and deteriorated condition. The wood ramp and two rear decks contain many warped, rotted, and missing members.

In 2003–2004, the Historian's residence was assessed by the Missouri State Historic Preservation Office and determined not eligible for listing in the National Register of Historic

Places.[385] Nonetheless, this building survives from the early park development period and contributes to the significance of the park landscape.

Four-unit seasonal housing building (Building No. 25). (Figure 152 through Figure 156) The four-unit seasonal housing building is a one-story building located in the southwest section of the grouping of Mission 66 residential structures. It is currently used for storage and is slated for demolition.

The rectangular ranch style building is characterized by concrete masonry walls that subdivide the structure into four apartment units. Wall areas between parting walls are clad in painted cedar lap siding. The roof is a shallow slope gable covered in three tab asphalt shingles. The roof edges have painted wood fascia and metal gutters and downspouts. The front of the building has screened-in porches that also act as the main front door entrances for each unit. The rear of the building has one door for each unit leading to small concrete patio slab. Windows are double hung design, either single or paired, with wood sashes. All window openings have been fitted with aluminum storm sashes painted in a dark brown color. All entrance doors have been retrofitted with newer steel clad doors with vision panel.



FIGURE 152. The four-unit seasonal housing building, view looking northwest towards the front of the complex.



FIGURE 153. The four-unit seasonal housing, view looking towards the west facade.



FIGURE 154. The four-unit seasonal housing building, view looking northeast.



FIGURE 155. The four-unit seasonal housing building, view looking towards the east facade and rear of the complex.

385. Ibid.



FIGURE 156. Detail of the rear of the building, showing stoops, condensing units, and electrical service features.

The four-unit seasonal housing building is generally in fair to poor condition, and does not meet universal accessibility standards. The cedar siding, while mostly intact, contains large areas of paint failure and wood deterioration. Wood fascia boards have extensive paint failure and are warped. The asphalt shingle roofing is in fair to poor condition. Several loose and detached asphalt shingles are in evidence. Many downspouts are missing, allowing water to pool around building foundations. Paint and sealant at the wood windows is also in poor and deteriorated condition.

In 2003–2004, this and the other Mission 66 era buildings were assessed by the Missouri State Historic Preservation Office and determined not eligible for listing in the National Register of Historic Places.[386] Nonetheless, this building survives from the early park development period and contributes to the significance of the park landscape.

Structures.

Storage area shed. The Superintendent's Report states that the storage shed was constructed in the maintenance shop area in 1997. The shed and associated storage area were moved to the southwest corner of the housing complex around 2004 to allow the construction of the expanded visitor center. The storage building located in association with the fenced enclosure at the southwest corner of the housing complex postdates the period of significance and does not contribute to the significance of the park landscape (Figure 157).



FIGURE 157. A small storage shed is located in the fenced storage yard southwest of the housing complex.

Board fence enclosure at storage area. A wooden post and board fence forms a rectangular enclosure for the maintenance yard associated with the storage shed. The yard is used to store construction materials used in maintaining the park. Although its date of origin is not currently known, the fenced enclosure appears to postdate the period of significance and does not contribute to the significance of the park landscape.

Footbridges along Carver Trail. The George Washington Carver National Monument contains two pedestrian bridge crossings of Carver Branch. Bridge 1 is located along the Carver Trail directly adjacent to the Boy Carver statue (Figure 158). Bridge 2 is also located along the trail immediately south of the Moses Carver house (Figure 159).

386. Ibid.



FIGURE 158. Bridge 1, view looking north and showing the approach ramp and bridge truss configuration.



FIGURE 159. Bridge 2, view looking south from the approach ramp.

The bridges are identical in design, structure, and material. The bridges utilize two Corten tubular steel trusses with a 2x6 wood pedestrian walk situated between the trusses. The bridge truss assembly rests on thick concrete stem wall foundations at either side of the stream (Figure 160). Dimensional treated-wood approach ramps edge the end of each bridge to match the grade of the bridge walk surface with the trail system. The steel truss bridge sides also contain two 2x6 wood railings to fill the gaps between the diagonal truss members. The center of the bridge wood walking surface is painted with a gray sanded paint to improve traction and prevent slippage (Figure 161).



FIGURE 160. Detail of the concrete foundation stem wall on Bridge 1.



FIGURE 161. View of wood decking and the wood railings.

Identification tags on each bridge indicate that they were constructed by Bridge America, Inc. of Alexandria, Minnesota. Each bridge was engineered to carry 100 pounds per square foot (live load) and 6,000 pounds of vehicular load. The bridges were installed in 1991.

Both bridges are in good to fair condition. The 2x6 wood railings are warped and contain organic growth. Several elements of the wood approach structures also have rotted wood components including vertical posts and railings. Corten steel elements appear to be in good condition and are performing well. Paint at the wooden bridge floor is worn in some areas and also contains organic growth.

Wooden footbridges have been used to convey the Carver Trail across park streams since at least 1963

(Figure 162). Bridges were also used during the Shartel period to cross property streams (Figure 163). The initial bridges were replaced in 1993, and again in 2001. They postdate the period of significance and do not contribute to the significance of the park landscape.

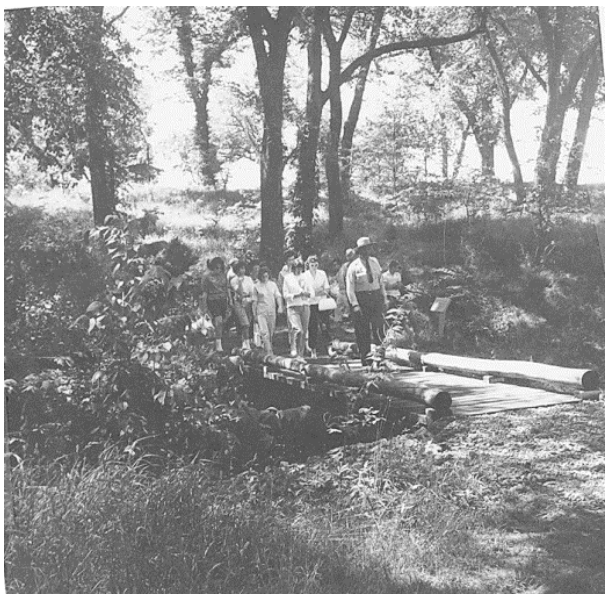


FIGURE 162. A footbridge crossing Carver Branch in 1963. Source: George Washington Carver National Monument photo collection.



FIGURE 163. Footbridges were used to cross streams during Shartel ownership, such as this bridge pictured in 1938. Source: George Washington Carver National Monument photo collection.

Williams Pond dam (LCS ID 070024; HS-37). Williams Pond is impounded with an earth fill gravity dam, fitted with a discharge pipe, that was built in 1978 (Figure 164 and refer to Figure 66).[387] An earlier dam, which was built of earth reinforced with rock and mortar, was built in the 1930s by the Shartels approximately 100 feet downstream from the Williams Spring (Figure 165).[388] The dam formed a shallow one-half acre pond. Today, the pond measures three-quarters of an acre. The pond was named after Sarah Jane Williams, Moses Carver's niece. William Moore Williams married Sarah Jane Carver (Moses Carver's niece) in 1853. They built a house on the Moses Carver farm where they raised their family. The Williams children are thought to have been playmates of George Washington Carver.

The National Park Service excavated the land adjacent to the original pond to enlarge it when they repaired the dam to address safety and aesthetic concerns in 1978. Repair work was conducted according to a plan prepared by the National Park Service in consultation with a U.S. Soil Conservation Service Engineer.[389] A survey of park cultural resources in 1976 determined that the dam did not contribute to the historical significance of the national monument, so the use of more contemporary materials in the dam's reconstruction was not considered to be an issue. The project ultimately entailed the removal of 600 cubic yards of dredge materials from the pond. Much of the material was spread in the woods to the east and north of the pond, at a depth of up to 3 feet. To prevent damage to the woodland trees, the dredge material was later removed and spread in nearby fields.

In 2004, the dam embankment was regraded to enhance mowing safety by placing rock at the base and backfilling with soil to diminish the steepness of the slope.[390] Today, the earthen structure is maintained under mown turf.

387. Cultural Landscape Inventory, 40.

388 The LCS also notes a possible original period of construction circa 1920 to 1929.

389. Superintendent's Annual Report, 1978.

390. Superintendent's Annual Report, 2004.

The dam postdates the period of significance and does not contribute to the significance of the park landscape.



FIGURE 164. The Williams Pond dam includes a discharge pipe.



FIGURE 165. The original dam was constructed in the 1930s. As shown, the earthen structure was reinforced with a mortared rock wall. Source: George Washington Carver National Monument photo collection.

Monument site boundary markers (LCS ID 070022; HS-35). Two stone masonry piers mark the northeast and southeast boundary corners of the park (Figure 166). Each measures approximately 32 inches square and is 5 feet, 6 inches in height. Of unknown origin, and assumed to postdate the Moses Carver ownership period, the markers likely date from circa 1916 to 1940.[391] The stone work is random course with beaded mortar and parged tops. They are consistent with a local tradition of marking property entrance and boundary corners, including the Shartel property prior to establishment of the national monument.[392] (Figure 167) They appear to have been present during the early park development period and contribute to the significance of the park landscape.



FIGURE 166. Stone piers mark the northeast and southeast corners of the park boundary.



FIGURE 167. Similar stone piers marked the entrance to the property during Shartel ownership. Source: George Washington Carver National Monument photo collection.

Stone wall, Carver family cemetery (LCS ID 070020; HS-31A). The Carver family cemetery is enclosed within a 4-foot high, 4-foot thick irregularly shaped, stacked stone perimeter wall with an opening along the north side (refer to Figure 69). The wall measures approximately 70 feet on each side. It was reconstructed in 1954–1955 by the National Park Service based on oral history information collected from older residents who remembered a wall enclosure prior to Shartel ownership of the property. The original stone wall was removed in the 1930s by the Shartels, who

391 LCS; Cultural Landscape Inventory, 30.

392. Cultural Landscape Inventory, 46.

reused the stone elsewhere (Figure 168). The northern opening is not consistent with archeological evidence that suggests the original opening was located on the eastern wall (Figure 169).



FIGURE 168. The stone wall surrounding the cemetery was removed in the 1930s. Source: George Washington Carver National Monument photo collection.



FIGURE 169. The current opening on the north side of the cemetery wall is not consistent with archeological evidence, which suggests the opening was formerly located on the eastern wall.

James Robinson, a nephew of Moses Carver, recalled that:

> There was a fence around the cemetery, it was 4 feet high or higher. There were several people buried in this cemetery with no marking on them and the number was more than 35 or 40. I can show you the boundary of the cemetery. I know for I helped dig several graves myself. My step-mother Josephine McCracken, and my half-sister, Blanche Hoard, [are] buried in here. There is an acre that [is] suppose[d] to go with this cemetery, but Uncle Moses never deeded it to the County like he was suppose. It is a pity that Shartel moved the rock wall. It had a gate on the east side.[393]

Another account indicated that

> In the early days there were many large loose stone, in which the farmers utilized for fences, piling them cone shape, 3 feet or more high; loose. This was the type of fence Mose built around this plot of ground to protect the graves from meandering stock.[394]

Mr. Elza Winter, a neighbor and friend to Moses Carver for many years, also recalled that limestone rubble gathered from the farm's fields were used to build a dry stone wall around the cemetery approximately 4 feet high.

By the time National Park Service officials visited the site in 1943, few remnants of the wall remained standing. National Park Service planner Howard Baker advised against its reconstruction. The National Park Service determined that it was important to rebuild the cemetery wall to protect the sacred ground from livestock and to support interpretation of the Carver farmstead. To support a goal of accurate reconstruction, the National Park Service conducted a combination of archeological investigations, documentary research, and personal interviews with local residents. Based on these efforts, the wall was rebuilt in 1954. The resulting wall was 4 feet in height, constructed of local stone, and included an eastern entrance into the cemetery.[395]

Photographs from the 1950s continue to indicate the eastern entrance, as oral history informants had recalled. However, the current entrance into the cemetery is on the north side. When and why the entrance was relocated is unknown. The surviving evidence of the cemetery's size, location, and patterns of interment are otherwise consistent

393. Toogood, 39.
394. Ibid., 39.
395. Ibid., 40.

with the historical information collected by the National Park Service.[396]

The wall currently suffers from destabilization and is in fair condition. It has been repaired several times. In 1982, the cemetery rock wall was restacked. In 1983 sections that had deteriorated were rebuilt. In 1987, the cemetery was vandalized, including the stone wall; the National Park Service has since worked to replace vandalized gravestones and wall sections. Fallen rock continues to be regularly replaced, and the wall no longer has a squared form as originally designed and constructed. With diminished integrity of design and workmanship, the rock wall survives from the early park development period and contributes to the significance of the park landscape.

Property boundary fence along Carver Road (three-rail post and board wooden fence). The park boundary is marked by a boundary fence along Carver Road. The fence is a wooden post and board structure that appears to date to 2002 (Figure 170).[397] There have been several fences along this boundary over the years. Fencing to enclose and mark park boundaries was first installed in 1960.[398] In 1964, four miles of fencing, constructed of 3-strand barbed wire on wooden posts, was installed by Jones Bros. Construction Co.[399] The 1978 Superintendent's annual report describes the rebuilding the rustic boundary fence that year.[400] The existing fence postdates the period of significance. The fence does not contribute to the significance of the park landscape.



FIGURE 170. The three-rail wooden fence that marks the park boundary along Carver Road.

Property boundary fence along Elder Road (metal post and barbwire) and gates. The park boundary along Elder Road is marked by a metal post and barbed wire fence typical of many local farm properties. Tubular metal gates are used to access the park through the fence from Elder Road in two locations. The gates lead to two-track access roads that extend into the park. The gates are tubular metal. Access to the park through these gates is restricted with chains and locks.

Fencing to exclude cattle along the park boundary appears to have been present since initial park establishment. In 1976, the Superintendent's annual report notes that two extra strands of barbed wire fence were installed on the fenceline south of the entrance road to eliminate the problem of cattle entering the monument grounds.[401]

The Superintendent annual report for 1981 indicates that the Missouri National Guard cleared the boundary in anticipation of erecting a new barbed wire boundary fence. Work on the fence began in 1982 and was completed in 1984.[402] The current fence may be this fence or a later replacement. This fence postdates the period of

396. Harrington et al., 28.
397. Superintendent's Annual Report, 2002.
398. Superintendent's Annual Report, 1960.
399. George Washington Carver National Monument fixed property records, as provided by Lana Henry, December 2014
400. Superintendent's Annual Report, 1978.
401. Superintendent's Annual Report, 1976.
402. Superintendent's Annual Report, 1981, 1982, 1983.

significance and thus does not contribute to the significance of the park landscape.

Chain-link fencing around fuel tanks near storage area. Low pressure gas tanks are located in the vicinity of the housing complex. The tanks are protected within chain link fencing. Although the date of origin of this fence is not currently known, propane gas was not used at the park until after 1965. The tanks and fencing thus postdate the period of significance and do not contribute to the significance of the park landscape.

Fencing around the Moses Carver house and yard. The split-rail fence around the Moses Carver house and yard was first constructed in 1972 to add to the historic ambience of the Moses Carver farmhouse precinct.[403] The approximately 4-foot-high wood structure interprets the style of fencing likely used on the Carver farm during the nineteenth century. It is representative of a nineteenth-century style known as zigzag, worm, or snake fencing based on its meandering layout (Figure 171). Construction of this type of fencing does not require the setting of posts. Instead, split timber logs or rails are placed to rest atop each other on adjacent rows of stacked rails that sit at an obtuse angle to each other. This type of fencing was frequently used in areas where timber was abundant, or where the rails were anticipated to be regularly moved. For example, split-rail fencing could easily be moved once cultivated fields had become exhausted. This fencing type was simple to construct and required no nails or hardware.

The fence has been replaced three times since 1972, in 1982, in 1998 with the assistance of Boy Scouts, and in 2009.[404] The fencing at the Moses Carver house postdates the period of significance and does not contribute to the significance of the park landscape.



FIGURE 171. A worm fence surrounds the Moses Carver house precinct.

Brick piers and gate at the main park entrance along Carver Road. Brick piers mark the park entrance. They were constructed as part of the Mission 66 era park development program, circa 1959–1960 (Figure 172). The northern pier formerly supported a park identity sign.

The brick piers support a pair of timber gates hung using metal straps bolted to the piers. These gates are swing-arm style, with 6x6 pine posts and 6x4 cedar arms and support. Black coated steel plates hold the arms and supports together. The gates are used to close the park at night. A sign attached to one of the posts notes "Park Closed." When the gates are open, they can be anchored to posts alongside the entrance road. The current gates were installed in 2014. They postdate the period of significance and thus do not contribute to the significance of the park. The brick piers, however, survive from the period of significance and contribute to the significance of the park landscape.

403. Superintendent's Annual Report, 1972.

404. Superintendent's Annual Report, 1998.



FIGURE 172. The brick piers that flank the park entrance were constructed as part of the Mission 66-era park development program.

Gates at the entrance to park housing. A set of two steel gates limits public access to the park housing area. The gates are hung from wooden posts associated with the park perimeter wood fence along Carver Road (refer to Figure 92).

Stone retaining walls along Carver Trail. In 2001, the park altered the Carver Trail to improve its accessibility. One of the areas of focus was the steeply sloped segment between the birthplace cabin and the Boy Carver stature. The trail was rerouted to include a sweeping switchback. To support the new trail section, the park built low stacked and mortared stone retaining walls on the uphill sides of the trail. A second segment of the trail between the Carver family cemetery and the Moses Carver house was altered in 2008 to improve accessibility, with a stone wall added to support a portion of the trail. These low walls measure approximately 1 to 2 feet in height. Although they are an aesthetically attractive addition to the trail, these walls postdate the period of significance and do not contribute to the significance of the park landscape.

Missing Buildings.

Moses Carver cabins. The present-day dwelling that is referred to as the Moses Carver house was the third dwelling built on the property by Carver during the nineteenth century. The first two structures were log cabins. The first was built as part of the early settlement of the property in the 1830s. After the Carvers built the second cabin, their slaves occupied the first. The first cabin is thought to be the birthplace of George Washington Carver. Both Carver cabins were lost prior to park establishment.

The impetus behind the park's first archeological investigations was to determine the locations of the cabins that existed on the Moses Carver farm during the time that George Washington Carver was living there. The investigations involved interviews with long-time residents of the area, as well as excavation and documentary research. Based on information collected from the personal interviews, National Park Service Archeologist Paul Beaubien directed excavation of the reported birthplace cabin site in 1953. The search was hampered by the fact that the Shartel family dwelling and associated ornamental planting beds had been constructed on or near the site. However, Carver's nephew James Robinson apparently was convinced of where the cabins had once been situated and led investigators to a point adjoining the stone fence that surrounded the main house's backyard, a spot just northwest of the 'hanging tree.'[405]

Based on these efforts, Merrill Mattes, Regional Historian for the Midwest Region of the National Park Service, and Archeologist Paul J. Beaubien published an article in the *Negro History Bulletin* in 1954 explaining their findings regarding the construction methods, forms, and locations of the two cabins. They hypothesized that:

> About 1838 a clearing was made in the trees immediately above the Carver spring on the closest plot of level ground. Then a rude, one-room cabin was erected within the clearing. At a later undetermined date, a second log cabin was built and occupied by the Carvers, with the earlier one being designated as the slave cabin. With the passage of time (about 50 years) the cabins had deteriorated considerably and the

405 Beaubien and Mattes, "George Washington Carver National Monument: The Archeological Search for George Washington Carver's Birthplace," 35-36.

> frame house or second Moses Carver dwelling was erected east of the cabins, nearer the road. It appears that each dwelling was occupied until the succeeding one was completed, and each was constructed further east from spring than the previous one. Thus the sites of the earlier buildings have not been occupied by later structures.[406]

Although the archeological investigations did not exactly confirm the locations of the cabins as suggested through personal interviews, Beaubien concluded that the "concentration of occupational debris in the southwest portion of the present flower garden [today the site of the birthplace cabin exhibit] seems to substantiate the testimony of those older residents who place the cabins at this site. Test trenching in other likely areas produced only negative results."[407]

Despite these conclusions, doubts lingered as to whether the cabin site had in fact been located. One concern raised thirty years later during an extensive survey of the park by a National Park Service archeologist was the likelihood that the excavations conducted by Beaubien in 1953 had destroyed any possible evidence of the cabin. In 1988, Missouri's state historic preservation officer, Claire F. Blackwell, also suggested that the integrity of the possible cabin site had been compromised by the excavation methods, while the effort had failed to resolve important questions about the birthplace.[408] Despite these concerns, it was recognized that the general upland terrace overlooking Carver Branch was a desirable settlement site, a theory supported by an archeology graduate student, Ervan Garrison, who re-surveyed the site excavated by Beaubien in 1953 and concluded that "the upper terrace in which Moses Carver built his home was certainly a favored spot for seasonal camp sites of prehistoric groups."[409] Based on the results of geophysical and geochemical prospection studies conducted during the 1990s, archeologists believe they can confirm the locations of "the original dwellings built by Moses Carver."[410]

In September 2011, MWAC archeologists conducted archeological investigations, including large-scale geophysical surveys, mapping, and a pedestrian survey, at the national monument. The work was undertaken to learn more about the archeological resources and included additional and more intensive surveys of the park, with an emphasis on the developed area, the Williams Homestead, the Carver family cemetery, and the newly acquired 30-acre parcel. The goal of these investigations was to generate data that would contribute to the park's interpretation and preservation of significant archeological resources and to assist with any future planning efforts. MWAC inventoried over 44,000 square meters (10.87 acres) within the developed area using magnetic and radar survey techniques. A preliminary analysis of the geophysical data identified several anomalies that appear to represent former historic building locations, and possibly the location of archeologist Beaubien's 1953 block excavation that was undertaken to search for evidence of the Carver Birthplace Cabin.

Descriptions of the log cabin where George was born, and the second Moses Carver cabin, were provided by Moses Carver's nephew James Robinson, a life-time resident of Diamond, who recalled that both had floors, but "were on the ground and there was definitely no foundation. The fireplace was also just sitting on top of the ground." As if to answer the questions raised by the results of the archeological investigations, Robinson added "you could dig for the next five years and would never find anything."[411]

406. Toogood, 33, from Paul L. Beaubien and Merrill J. Mattes, "The Archeological Search for George Washington Carver's Birthplace," from *The Negro History Bulletin* Vol. XVIII, No. 2 (November 1954), 22-22.
407. Toogood, 34.
408 Harrington et al., Appendix 1, ii.
409 Harrington et al., Appendix 1, vii.
410. Ervan G. Garrison, "Archaeogeophysical and Geochemical Studies at George Washington Carver National Monument, Diamond, Missouri," *Historical Archaeology* 30, no. 2 (1996): 37.
411. Ibid.

The longest and most detailed account was offered by Moses Carver's nephew, Tom Williams, in a letter from Inez Armstrong to Richard Pilant in June 1942:

> He says the log cabin in which Carver was born faced the east with a single window in the west and a chimney on the north. It was built of hewn logs perhaps 5 inches through, notched at the ends and fitted together, the cracks then being filled with clay or chinking. The door was a plank door with wooden hinges. Mr. W. described the making of the hinges but he may as well have been speaking Greek to me… The roof was of clapboards. The chimney was built of rock up to the mantelpiece and of sticks and clay from there. The sticks were about 2-1/2 inches in diameter.
>
> There is some disagreement as to the dimensions of the cabin. Mr. Williams says it was about 14 feet by 14 feet by 8 feet, while Mr. Winters says 16 by 16 feet by 8, and Mrs. Goodwin, Mr. Williams' daughter, insists the length was greater than the width. Her guess is 16 feet by 14 feet by 8 feet.
>
> There were two beds in Carver's cabin. They used rope for bed slats. The table had legs crossed on each side somewhat like a sawhorse. Through the cross on each side a hole was bored and a round stick was placed through both holes to help to make the table stronger.[412]

Another local resident, Mary Lou Hardin, recalled the following regarding the cabin:

> … The slave cabin was situated a short distance from Uncle Moses cabin in a northwest direction… The slave cabin had a chimney and fireplace and there were shutter windows in it. No glass. It contained only one room. The house was made of logs, and were hewed off.[413]

While neighbor Elza Winter recalled:

> The slave cabin… had no window light but there was a window board which could be removed in the summer time. It was a log building. The door faced south. The roof was pitched and made of clapboards. There was a rock fire place. The slave cabin and the original Moses Carver dwelling, also a log cabin, were both one room buildings.[414]

Additional insight is afforded from the description and sketch of the slave cabin prepared by George Washington Carver based on the request of Henry Ford, who built a memorial cabin in Dearborn (Figure 173). In describing the cabin, he noted:

> … I remember the little log cabin very well indeed, located just above the spring of which you speak, I am sure. I can remember as a little boy carrying gallons of water from this spring for more than an hour to start the ash hopper running during the spring season to make the usual quantity of soap we needed for the year.[415]



FIGURE 173. Sketch of the birthplace cabin prepared for Henry Ford, circa 1937. Source: HRS, 39, citing Tuskegee University Special Collections.

Both Carver's recollections and interviews with local residents suggested that the cabin was a one-room log structure; accounts otherwise vary.

It appears that Elza Winter also remembered the second log cabin where Moses and Susan Carver lived as a one-room structure. He added that the

412. Toogood, 34–35.
413. Toogood, 35, as quoted in Fuller-Mattes, Part I, 24.
414. Ibid.
415. George Washington Carver to Irving Dillard, St. Louis Post Dispatch, 20 March 1942, George Washington Carver National Monument archives, Box 17, folder A.

second cabin was "a little larger than the other." Mary Lou Hardin, however, remembered the second Carver cabin as having two rooms. In another account, Forbes Brown remembered the original house being built of "logs sheathed with roughly sawed boards," while John Harris remembered it as "an old time log house of 1-1/2 story."[416]

Early twentieth century historian Wiley Britton, who penned *Pioneer Life in Southwest Missouri,* notes that "most of the people in the country in the Ozark region up to the war lived in log houses."[417] From the testimony available, it appears that both cabins were constructed of hewn logs. In his assessment of pioneer cabins in southwest Missouri, Wiley Britton noted:

> There were probably not as many round logs as hewed log houses in our section up to the war, for a rule the pioneers of thrift and who were ambitious of improving their surroundings, were able in a few years to replace their round log with hewed log houses, using the former for stables and cribs, or as an addition to the new house… the family living in the hewed log house was generally regarded as holding a higher social status than the family living in the round log house… an index of his character and energy… Both the round and hewed log houses usually had only one window with four panes… poorly lighted … most houses had puncheon floors … replaced in a few years by most families with sawed plank floors.[418]

Another description of pioneer cabins in the region was included in *A Reminiscent History of the Ozark Region* published about 1893:

> The pioneers' cabins were generally made of logs, sometimes hewed on two sides and sometimes not hewed at all. The form of the cabin was always an oblong square, with a huge fireplace in one end. The fireplace was set back in a crib composed of logs, with the face even with the inner wall. This crib was heavily lined with stone and mortar, built up on a hearth made of flat stones. On the top of the stone and mortar lining was made a stick-and-mud chimney, the latter always being entirely on the outside of the building and extending a little above the comb of the roof… All the tools required in the building were an ax, broadax, froe, and auger.[419]

Williams Homestead (23NE121). The Williams family was related to the Carvers. Sarah Jane Williams was the niece of Moses Carver. She and her husband William Moore Williams acquired a portion of the Moses Carver farm shortly after the death of Susan Carver. In poor health, Moses later left the farm around 1900 to live with a nephew, John Thomas Carver, near Galena, Kansas. John Carver was the son of Moses's brother Richard Carver who had died in 1872, A few years later, Moses deeded John Carver the remainder of his land. After he died in Kansas in 1910, his remains were returned to Missouri for burial next to Susan in the family cemetery. In the meantime, Sarah and William Williams remained at the Moses Carver farm. Their children were Daniel Thomas and Martha Jane Gilmore. The Gilmores subsequently made their home on the property.[420] Neither the Williams nor the Gilmore homestead was present on the property at the time of park establishment.

In 1975, a team of archeologists from the University of Nebraska visited the park to locate the former site of the Williams homestead. The team used proton magnetometry techniques to locate anomalies in the soil that might represent cultural deposits.[421] These efforts yielded few results.

In 1976, a more complete image of the Williams homestead emerged from fieldwork conducted by Ervan G. Garrison, a graduate student from the University of Missouri-Columbia, in conjunction with Robert T. Bray, professor of anthropology at the University of Missouri. Resurvey of one anomaly discovered the previous year using a metal detector revealed foundation stones and a

416. Toogood, 34-35.
417. Toogood, 33, from Wiley Britton, *Pioneer Life in Southwest Missouri* (Columbia, Missouri: Smith-Grieves Company, 1923), 65.
418. Toogood, 36, from Britton, 67.
419. Toogood, 36, from *A Reminiscent History of the Ozark Region* (Cape Giradeau, Missouri: Ranfre Press, 1884, reprinted 1966), 20.
420. Harrington et al., 8
421. Superintendent's Annual Report, 1975.

rubble fill area believe to represent three structures associated with the Williams homestead: a barn site west of the pond, a house site, and an outbuilding considered to be a cabin, north of the pond.[422]

Gilmore Homestead (23NE120). The Gilmore home was located in the northwest corner of the property near the west bank of Harkins Branch. Although the Gilmores never gained title to any of the farm, they resided there and cultivated crops with Martha's brother Daniel Williams.[423]

The Gilmore homestead was also investigated in 1975 by the team of archeologists from the University of Nebraska. Here, the team also used magnetic survey techniques, but derived little information from the effort.[424]

However, as part of the 1976 investigations conducted by Garrison and Bray, several features associated with the farmstead were located. These included two major concentrations of cultural material, one on the upper terrace above Harkin's Branch and another approximately 130 feet to the south on a lower terrace about 30 feet west of an old ford over the stream. Between the two clusters was the trace of an old road that extended between the upper terrace and the ford. Analysis of the artifacts discovered at the two concentration sites, suggested that the upper terrace was the site of the dwelling and the lower terrace the barn.[425]

Spring house at Carver Spring. Another structure described by local residents that is no longer present on the property is a spring house thought to have been located near Carver Spring. The feature was described in an interview with Carver's nephew James Robinson, who noted that the Carver family ". . . used water from the spring down under the hill." Although it is not known whether the Carvers constructed a springhouse in association with the spring. Historian Wiley Britton believes: "With very few exceptions the early pioneers settled near a good spring in the Ozark region," and they erected a springhouse for ". . . keeping their butter and milk. The milk was placed in the spring house so that cream might rise."[426]

Barn. The Moses Carver farm is also thought to have included a large barn used to shelter livestock and serve as a workspace and storage area. James Robinson specifically recalled, "Uncle Moses barn stood just south of where the present [Shartel] barn is located. It was built of double logs and shedded all around."[427] Carver likely kept his prized horses and some of his cows in the barn, in accordance with the customs of the region, as suggested by Wiley Britton:

> There was one feature of stockraising in that section that must have impressed anyone who was familiar with better methods and that was the absence of shelter for cattle in the winter, except that one or two cows might be kept in a shed. But most of the farmers provided stables for their horses . . . .[428]

Britton also suggested that barns typically consisted of "a stable for horses and cows, crib for corn and hay loft, all under one roof."[429]

Stock shed(s). Moses Carver also likely built sheds to shelter his cattle, sheep, and swine during the winter months. As Britton notes:

> Before the war, a few farmers moved into the different counties . . . from Iowa and Northern Illinois where the winters were severe, built separate sheds, standing east and west within the north sides and ends closed so as to keep out the cold winds and rains and feeding them there, protected their stock in severe weather.[430]

Stock pens. Britton also notes that stock were kept in pens during the spring, summer, and fall. These may have adjoined the winter sheds. The

422 Harrington et al., Appendix 1, vi.
423. Harrington et al., 8
424. Superintendent's Annual Report, 1975.
425. Harrington et al., Appendix 1, vi.
426. Toogood, 37.
427. Ibid.
428. Ibid.
429. Ibid.
430. Ibid, 38.

sheep would have needed protection against wolves. The pigs were contained while they were fed corn and swill before slaughter in early January. Pens and sheds might have been located in close proximity to the barn to facilitate care and feeding of these livestock.[431]

Smoke house. Moses Carver was also likely to have constructed a smoke house in close proximity to his log cabin where he could preserve cuts of hog and cattle. Britton notes that the hog ears, feet, and other parts usually hung in the smoke house for a month or so prior to being stored in salt barrels.[432]

Cider press shed. Moses Carver maintained a large fruit and nut orchard. The products of the orchards likely supported the family, but were also sold. One of the methods of preserving apples for later use was to press them to make cider. Britton has noted: "Nearly every farmer who had an orchard had a cider press." With 520 trees in 1880, Carver may have sold cider in quantity. He would have housed a cider press in a shed where he could squeeze the apples.[433]

Fences. Fences were likely a prevalent element of the Moses Carver farm. As noted previously Carver used both worm and snake fences to enclose his crop fields and picket fencing around his kitchen garden near the dwelling. Personal accounts of his property suggested that the Carvers trained gourd vines on the picket fence, which likely enclosed a kitchen garden.[434] In addition to these constructed fences, Moses Carver is said to have experimented with living fences composed of rows of walnut trees.

Shartel farmstead. Cassius Shartel purchased the 240-acre Moses Carver farm circa 1913. Shartel was a Neosho real estate agent. As part of his development of the property as a thoroughbred cattle business, Shartel moved the Carver frame dwelling to its current location, while building an extensive complex of dwelling houses and outbuildings in the current location of the visitor center. The buildings that comprised the complex included a dwelling house, a utility storage building, tenant house, garage, primary barn, loafing shed, feed storage and brooder house, chicken house and machine shed, chicken house, pig sty, granary, cowshed and feeder barn, bull pen, rabbit house, pump house, rock shed, pit toilet, and shed.[435]

At the time the National Park Service acquired the Moses Carver farm property, there were approximately nineteen buildings on the property constructed by the Shartel family. These buildings were adaptively reused for several years while the park was developed, primarily between its opening in 1953 and the completion of the visitor center, maintenance buildings, and park residences in 1959 and 1960. After 1960, many of the Shartel structures were moved or razed. The Shartel farmhouse was moved to a nearby farm, where it stands today.[436]

Spring house at Williams Spring (LCS ID 070023; HS-36). There is a partial foundation of a spring house submerged at the edge of the Williams Pond. Although the features is of unknown origin, the List of Classified Structures suggests that the springhouse foundation dates to circa 1853–1900.[437] The spring and foundation ruins become visible when the water level in the pond becomes low.[438]

Carver Discovery Center. In 1996, the park acquired a 12 by 60 foot trailer intended for use as an interactive education center for grades K through 6. The trailer was placed to the north of the Historian's residence, and accessible walkways and ramps were built to provide access to the interior. The hands-on learning facility was named the Carver Discovery Center and opened to the

431. Ibid.
432. Ibid.
433. Toogood, 38.
434. Ibid., 40.
435. Ibid., 37.
436. Superintendent's Annual Report, 1960. It is not clear from the report whether the dwelling was moved by the National Park Service or the owners of the nearby farm.
437. NPS List of Classified Structures.
438. Ibid.

public as part of the Parks as Classrooms program in 1997. The center continued to provide educational programming until 2007, when the new visitor center was completed. The trailer was sold and removed in 2008.[439]

Contributing Buildings and Structures.

- Moses Carver house
- Maintenance shop building
- Superintendent's residence
- Historian's residence
- Four-unit seasonal housing building
- Stacked stone wall enclosing the Carver family cemetery
- Monument site boundary markers (2) along Carver Road
- Williams Springhouse foundation
- Brick piers at park entrance

Undetermined Buildings and Structures.

- Utility building
- Storage shed

Non-contributing Buildings and Structures.

- Visitor center
- Earthen dam of Williams Pond
- Property boundary fence along Carver Road (three-rail wooden board)
- Property boundary fence along Elder Road (metal post and barbwire) and metal gates
- Board fence enclosure at storage area
- Storage area shed
- Chain-link fencing around fuel tanks
- Gates at park entranceGates at entrance to park housing
- Footbridges along the Carver Trail
- Stone retaining walls along the Carver Trail

Missing Buildings and Structures.

- Moses Carver cabins
- Williams Homestead
- Gilmore Homestead
- Spring house at Carver Spring
- Barn
- Stock shed(s)
- Stock pens
- Smoke house
- Cider press shed
- Fences
- Shartel farmstead
- Spring house at Williams Spring
- Carver Discovery Center

439. Superintendent's Annual Reports, 2007, 2008.

3.3.10 Utilities

Several utility features are present within the national monument. These are associated with electrical, water, sewer, telephone, and gas lines and provisional systems. None of the extant utility features within the park are historic. All have been replaced or updated since 1960.[440] They thus all constitute non-contributing resources.

Water systems. The park secures potable water from a public water system. In addition to servicing the needs of the buildings within the park, the water system feeds a water pump located next to the drinking fountain in the picnic area (refer to Figure 188) and fire hydrants located in the vicinity of the housing complex, visitor center, and parking area. Manholes associated with utility systems are visible in several locations.

Fire hydrants were described as having been installed for fire protection around all buildings in 1961. The water pressure was provided from an auxiliary booster plant located in the well pump section of the new visitor center maintenance area. A storage tank that held 20,000 gallons of water was installed for emergency purposes.[441] In 2002, the water system was upgraded to address fire suppression needs. New fire hydrants, pressure tanks, pumps, and a holding tank were added to the park at the time.[442]

The park's water needs were addressed soon after completion of the visitor center. The park's fixed property records indicate that a drilling well, building reservoir of 20,000 gallons capacity, pipe, and fire-protection system were acquired by contract in 1961, while a water system was acquired by contract in 1962.[443]

In 1998, the Environmental Protection Agency (EPA) conducted water sampling in the park and determined that lead levels exceeded permissible levels. The EPA recommended that the well dug in 1959 be retrofitted with a water softener system to reduce lead contaminants. As a stopgap measure, the EPA supplied the park with bottled drinking water. In 2000, a new well was installed in the park to serve as a backup to the primary well. The recommended water softener, however, was never installed.

During the 2000s, the EPA and other public agencies expressed growing concerns about the potential effects of the region's abandoned lead and zinc mines on water quality. One of the results of increased vigilance was passage of a new Missouri law that suggested all new wells in Newton County reach deep aquifers; the park's second well, with a depth of 575 feet, was classified as a shallow aquifer well, suggesting it was not a long term solution to the park's water problems, particularly given the proximity of the abandoned lead and zinc mine on the property.[444]

At the same time, an inspection of the park's potable water by the U.S. Public Health Service suggested that the well casing on the original 1959 well was failing. The well was recommended for closure to prevent contamination of the aquifer.[445] The park immediately took the older well offline and switched their water system to the new well. The 1959 well was closed in December 2004. Meanwhile, the park partnered with the EPA and city of Diamond to extend the rural water system to reach the park. The Midwest Region also funded connection of the fire suppression line to the potable water main with the installation of a

440. Toogood, Appendix F.
441. Superintendent's Annual Report, 1961.
442. Superintendent's Annual Report, 2002.
443. George Washington Carver National Monument fixed property records, as provided by Lana Henry, December 2014.
444. "Lead and Zinc Mine, Potable Water Quality, Newton County National Priorities List of Hazardous Water Sites," 30 September 2003, File L54, ACF, GWCA.
445. "Lead and Zinc Mine, Potable Water Quality, Newton County National Priorities List of Hazardous Water Sites," 30 September 2003, File L54, ACF, GWCA.

backflow preventer. The new water hook-ups were in place by the summer of 2005.[446]

Sewer. A septic field extends from the visitor center into the grassland prairie to the west of the building. A clean-out is disguised by a large white plastic dome fashioned to look like a boulder (Figure 174). The park's fixed property records indicate that septic lines and tanks were acquired by contract in 1961. In addition, a sewer system was acquired by contract in 1962.[447] The septic system was rehabilitated in 1984.[448]

In 2011, the city of Diamond, which had planned a wastewater spray field on a neighboring property, abandoned these plans because of the concerns raised by many agencies.[449]



FIGURE 174. Above ground portions of the septic system.

Electrical systems. Today, electrical boxes are present west of the walled maintenance yard (Figure 175), and there is an electrical hookup in the picnic area (refer to Figure 124). The buildings are serviced by underground lines. An overhead electrical line crosses the southwestern corner of the property.



FIGURE 175. Electrical boxes west of the maintenance yard wall.

In 1943, a 7,200-volt power line ran along the eastern edge of the property. Another line ran between the cemetery and the proposed site of the park headquarters on the hill. These were considered "a serious intrusion" upon the visual character of the park and were identified for relocation.[450] National Park Service Director Newton Drury described the power transmission

446. Krahe and Catton, 147, citing National Park Service, "Carver Announces Ground-Breaking Ceremony Visitor Center Expansion Project – Carver Discovery Center," July 28, 2005, File L14, ACF, GWCA.
447. George Washington Carver National Monument fixed property records, as provided by Lana Henry, December 2014.
448 Superintendent's Annual Report, 1984.
449. Superintendent's Annual Report, 2011.
450. Krahe and Catton, 66, citing United States of America, Plaintiff, vs. 210 acres of land, more or less, situated in the County of Newton, in the State of Missouri, and Dawson W. Derfelt and Nell M. Derfelt, his wife et al., Defendants, No. 673, Petition, June 11, 1948; "Remove 154 KV Lines Due to Condemnation of the Dr. D. W. Derfelt Land For G. W. Carver Memorial," September 21, 1948; George Thompson, Acting Regional Chief of Lands, National Park Service, memorandum for the Regional Director, September 24, 1948, File 0-35, Box 187, CCF, RG 79, NA-CPR; Newton B. Drury, Director, National Park Service, to the Attorney General, August 27, 1948, File L58, Box 2105, Administrative Files 1949–1971, RG 79, NA II.

line as "a blot on the landscape [that] would detract from the dignity of the memorial."[451]

Electric lines were first installed in conjunction with the construction of the visitor center and residences in 1959–1960. The first major updating of these utility systems occurred in 1984 when the electrical lines to the visitor center and maintenance building complex were replaced with underground electrical lines in order to diminish their visual impact.[452] The lines have been remained problematic since their installation, however. Because the soils associated with the park include a layer of hard pan covered by a half inch of groundwater, they become a perfect ground in a lightning strike. The visitor center complex is connected to the power grid by a dead-end line. When a lightning bolt hits the ground within a three mile area, electric lines pick up the charge and a power surge of millions of volts follows the lines to the nearest ground. The ground is sometimes the park. The surge causes alarms to go off in the electrical system and the computer and telephone systems to go offline. The water heaters also often shut down.[453]

HVAC systems. Ground mounted HVAC units are located behind the housing complex buildings, visitor center, and maintenance buildings. The HVAC systems originally installed in 1959–1960 were never very successful. In 1995, they were upgraded. When the visitor center was expanded in 2007, the building included new HVAC systems and wiring, as well as a new power transformer.

Two 1,000-gallon propane gas tanks are located within a fenced enclosure south of the housing complex (Figure 176). The tanks are raised above the ground on concrete supports and surrounded by a chain link fence. Standing between the two tanks is a small wood platform with wood steps and black metal handrails.



FIGURE 176. Liquid petroleum gas (propane) tanks are stored in a fenced enclosure south of housing complex.

Efforts conducted by the park to establish a gas line beginning in 1961 were continually thwarted due to problems securing an easement.[454] In 1963, the park attempted to work with the Cities Service Gas Company in Oklahoma to supply gas and the Rural Electrification Association in Joplin to secure the necessary easements and lines.[455] They were not successful, however. In 1965, the park determined to install a permanent liquid petroleum gas (propane) system due to the problems encountered in adding a line.[456] The park's fixed property records indicate that an liquid petroleum gas system and distribution lines were acquired in 1966.[457] A similar system remains in place within the housing complex.

Communications. Fiber-optic cables connect the park administrative and interpretive areas. The

451. Krahe and Catton, 68, citing Newton B. Drury, Director, National Park Service, to Secretary of the Interior, April 19, 1949, File 0-35, Box 187, CCF 1936–1952, RG 79, NA-CPR; Associate Director, Memorandum for the Regional Director, Region Two, National Park Service, April 12, 1949; Lawrence C. Merriam, Regional Director, National Park Service, to Sam M. Wear, April 15, 1949; Sam M. Wear to The Attorney General, May 14, 1949; Drury to The Attorney General, May 20, 1949; File L1415, RCF, GWCA.
452. Superintendent's Annual Report, 1984.
453. Krahe and Theodore Catton, 148, citing Sanders interview, November 8, 2012.
454. Superintendent's Annual Report, 1961.
455. Superintendent's Annual Report, 1963.
456. Superintendent's Annual Report, 1965.
457. George Washington Carver National Monument fixed property records, as provided by Lana Henry, December 2014.

cables support the park's telephone, alarm, and computer systems.

A satellite dish is located to the rear of the visitor center. National Weather Service equipment located along the edge of the prairie near the visitor center is used to collect data within the park (Figure 177). It was installed in 2009. The park installed a tornado siren in 2014 directly south of the maintenance facility yard wall.

Refuse. Garbage disposal was also problematic for the park. In 1963, a landfill disposal site was dug on site by a local contractor.[458] The landfill area was removed and the access road to it eliminated in 1978.[459]



FIGURE 177. This device collects weather data within the park.

Contributing Utility Features.

- None identified

Non-contributing Utility Features.

- Overhead electrical line that crosses the southwestern corner of the property
- Septic leach field that extends from the visitor center into the grassland prairie west of the building
- LP gas tanks near the housing complex
- HVAC units behind the building, visitor center, and maintenance buildings
- Water pump next to the drinking fountain in the picnic area
- Fire hydrants in the vicinity of the housing complex, visitor center, and parking area
- Satellite dish to the rear of the visitor center
- Electrical boxes west of the walled maintenance yard
- Manholes
- Tornado siren
- National Weather Service data collection equipment

458. Superintendent's Annual Report, 1963.

459. Superintendent's Annual Report, 1978.

3.3.11 Small-scale Features

Small-scale features are landscape elements providing detail and diversity for both functional needs and aesthetic concerns in the landscape.[460] These features may be movable, seasonal, or permanently installed and be singular items or part of a larger system, such as signage. At George Washington Carver National Monument, small-scale features include site furnishings provided for the use and comfort of visitors, statuary, cemetery features, and signs and exhibits.

The majority of the small-scale features located within the park postdate the period of significance. Many are new additions to the landscape, while others are replacements of earlier features. Three principal elements within the park landscape survive from the park establishment period of significance and contribute to the historic landscape. These include the Boy Carver statue, the bust of George Washington Carver, and the bronze dedication plaque set within a boulder near the visitor center. Lighting at the park housing complex also appears to survive from the park establishment period. There are no small-scale features that survive from the Carver farm period.

Site Furnishings.

Flagpoles. Two identical flagpoles are located within the park. Both are unpainted, tapered metal poles topped with gold ball finials. One is located in front of the visitor center, the other in front of the Historian's residence within the housing complex. The latter is not currently in use.

The flagpole in front of the visitor center was relocated after the building was expanded in 2007 from the parking island to the front of the entrance (Figure 178).[461] The flagpole at the housing area was installed in 1997 in preparation for the opening of the Carver Discovery Center.[462]



FIGURE 178. The visitor center flagpole was originally located in the island created by the looped entrance road. Source: George Washington Carver National Monument photo collection.

Lighting. Several lighting elements are present in the park. While lighting elements associated with the housing complex survive from the early park development period, all other park lighting postdates the period of significance.

A residential-scale light is located along the sidewalk in front of the four-unit seasonal housing building in the housing complex. The light is composed of a metal base, brown painted post, and plain cylindrical lantern with brown metal cap (Figure 179). It appears to relate to the design and period of construction of the building and to contribute to the significance of the park landscape.



FIGURE 179. A residential-scale light in front of the four-unit seasonal housing.

460. *Guide to Cultural Landscape Reports*, 146.
461. Superintendent's Annual Report, 1997.
462. Personal communication, Lana Henry, December 2014.

Two residential-scale lights flank the park entrance along Carver Road and stand in front of the brick entrance piers. Each light is composed of a painted metal base, a tan painted post, and a decorative copper lantern (Figure 180). The paint on the base of both lights is peeling rather badly, and the north light is being engulfed by an overgrown shrub. These lights postdate the period of significance and do not contribute to the significance of the park landscape.

Other lighting elements in the park include three low metal spotlights mounted in concrete in the lawn in front of the visitor center (Figure 181). None is historic.



FIGURE 180. Residential-scale lights flank the park entrance road.



FIGURE 181. Spot lights in the lawn in front of the visitor center.

Benches. A number of benches are located in the park, providing visitors with opportunities to rest and reflect.

Wood slat benches are located along trails, walks, roads, and parking areas, and within the picnic area. The wood slat benches are consistent with those shown in photographs of the national monument dating from the early 1960s.

Backed benches, painted red, are mounted in-ground on bent tube metal posts in the picnic area, in the parking island, along the Carver Trail near Williams Pond, and outside the cemetery wall (Figure 182). The paint is peeling on several of these benches. Similar painted benches, with black metal supports, are located near the Moses Carver house (Figure 183).

An unpainted, backless wood slat bench is located along the edge of the octagonal plaza that marks the Carver Trail trailhead (refer to Figure 100).

Free-standing wood slat benches with metal arms are located in the breezeway between the visitor center and the maintenance building (refer to Figure 134).



FIGURE 182. Backed wood benches are found throughout the park along trails, walks, and parking areas.



FIGURE 183. Similar benches are also found near the Moses Carver house.

A number of free-standing black metal benches, with decorative metal supports and arms, are located in the environs of the visitor center, including in the parking island, on the porch to the north of the building, near the visitor center entrance, and facing the Carver bust (Figure 184).

Stone benches are placed at intervals along the Contemplative Loop Trail around Williams Pond (refer to Figure 111). The benches were "carefully placed [to] provide the opportunity to sit and reflect while enjoying the quiet setting."[463] All of these benches postdate the period of significance.



FIGURE 184. Free-standing black metal benches are located along walks near the visitor center.

Picnic tables. Picnic tables are located in the grove north of the parking lot and entrance road, and under the trees south of the parking area. All of the picnic tables postdate the early park development period of significance.

The tables are composed of recycled plastic benches and table tops, with metal supports (Figure 185 and Figure 186). At least one of these tables is designed for universal accessibility.

Picnic tables were present near the parking area by 1973, although picnicking is known to have been part of the visitor experience as early as 1959.[464] In 1998, recycled plastic lumber was used to resurface the picnic tables.[465] In 2005, dilapidated picnic tables were replaced with the current recycled-content tables.[466]



FIGURE 185. Picnic tables in the shade tree grove along the entrance road.



FIGURE 186. The picnic tables are composed of recycled plastic with metal supports.

463. Long-Range Interpretive Plan, 18.
464. Toogood, 74.
465. Superintendent's Annual Report, 1998.
466. Superintendent's Annual Report, 2005.

Trash receptacles. Refuse and recycling receptacles are located along park walks, roads, and parking areas, and within the picnic area. All of the trash receptacles postdate the period of significance.

Trash receptacles include ground-mounted wood slat bins with plastic inserts and domed lids in the picnic area (Figure 187), free-standing exposed aggregate bins with plastic lids in the breezeway between the visitor center and maintenance building, and black metal trash/ash receptacles located adjacent to the two visitor center entrances. Recycling receptacles are grouped in threes around a central post, and are located in the vicinity of the picnic tables and parking lot, at intervals along the Carver Trail, and in the visitor center entrance plaza (refer to Figure 187). A blue plastic recycling bin is also located next to a vending machine on the north visitor center porch.



FIGURE 187. Refuse and recycling receptacles are provided in the picnic area.

In 2005, dilapidated trash receptacles were replaced with the current recycled content containers.[467]

Drinking fountain and pump. A universally accessible drinking fountain is located at the end of a short concrete walk in the picnic area (Figure 188). Adjacent to the drinking fountain is a water spigot.

The first universally accessible drinking fountain was installed in 1992, with access provided in the form of an accessible walk from the picnic area parking.[468] This drinking fountain replaced a similar concrete version installed circa 1984. The current drinking fountain was installed in 2012. The drinking fountain postdates the early park development period of significance.

Bicycle rack. A bicycle rack stands adjacent to the flagpole in the visitor center entrance plaza (Figure 189). The bicycle rack was installed during the expansion of the visitor center completed in 2007. The bike rack postdates the early park development period of significance.

Mailbox. There is a metal mailbox mounted on a wood post at the entrance to the housing complex (Figure 190). The mailbox was installed in 1995. It postdates the early park development period of significance.



FIGURE 188. The drinking fountain and water spigot in the picnic area.



FIGURE 189. The bicycle rack adjacent to the flag pole in front of the visitor center.

467. Superintendent's Annual Report, 2005.

468. Superintendent's Annual Report, 1992.



FIGURE 190. A mail box is located at the entrance to the housing complex.

Bird houses. Several wood bird houses are mounted to the interior of the wood boundary fence. At least one of these has a rotted and broken lid. Although the specific date of origin of the bird houses has not been determined, they appear to postdate the early park development period of significance.

Statuary. The park features two commemorative elements designed to honor George Washington Carver and recognize the importance of the park. These include the George Washington Carver bust and the Boy Carver statue. Both of these elements were placed within the park during the early park development period and contribute to the significance of the historic landscape.

George Washington Carver bust. A bust of George Washington Carver (LCS ID 005036; HS-26) stands in a small plaza at the end of the Carver Trail (Figure 191). The 2 foot 9 inch high cast concrete bust, painted bronze and coated with a waterproof sealer, was created by Audrey Corwin in 1952 and presented to the park at its dedication in 1953 by the George Washington Carver Memorial Institute.[469] The bust sits on a cut stone cap over a concrete block base with a limestone veneer. The stone cap is engraved with Carver's name. An audio box inset into the base plays a recording of George Washington Carver reciting Edgar A. Guest's poem, "Equipment," at a 1942 commencement address at Selma University.

The bust has been moved several times.[470] The bust was initially sited in the tree grove about 200 feet due east of the birthplace cabin site, which had not been identified at that time, and set on a concrete block base.[471] In 1963, the National Park Service prepared preliminary plans for relocating the bust.[472] The statue was moved circa 1965 to just outside the north door of the visitor center. At the time it was painted a metallic "gold" color, coated with a waterproof sealer, and reset on a smaller brick base.[473] The stone cap was cut down to accommodate the smaller base and the engraved letters recut.

In 1982, a new sign was installed near the bust and the audio recording was moved back by the visitor center. The bust itself was cleaned, refinished, and moved a second time in 1991, to accommodate the installation of an accessible comfort station. In 2001, the concrete bust was again refinished.[474]

The sculpture was relocated to its current site in 2006, to accommodate the visitor center expansion.[475] Construction drawings indicate that the bust, concrete cap, and audio box were salvaged, but that the bust was given a new concrete block base with limestone veneer.[476]

The bust has lost integrity of location and has diminished integrity of setting and materials, but possesses sufficient integrity of feeling, association, design, and workmanship to contribute to the significance of the park landscape.

469. Cultural Landscape Inventory, 23, 45; Toogood, 62.
470 LCS.
471. Drawing 397-3025B, 3/16/64.
472. Superintendent's Annual Report, 1963.
473. 1973 National Register nomination, Superintendent's Annual Report, 1965.
474. Superintendent's Annual Report, 2001.
475. Cultural Landscape Inventory, 27.
476. Visitor center expansion drawing (397-41003A), dated 3/1/05, sheet 18A, subsheet L6.0, detail 6.



FIGURE 191. The Carver bust is located in a small plaza near the northwest corner of the visitor center.



FIGURE 192. The Carver bust in its original location east of the birthplace cabin site. Source: George Washington Carver National Monument photo collection.



FIGURE 193. The Carver bust was moved in 1965 and reset on a brick base. Source: George Washington Carver National Monument photo collection.

Boy Carver statue. The Boy Carver statue (LCS ID 005038; HS-30) was cast by sculptor Robert Amendola and acquired by the park from the artist in 1962.[477] The 4 foot tall bronze statue portrays George Washington Carver as a young boy and is set atop a 5 foot tall, 6 ton limestone boulder chosen by the artist. An identical state is located in association with a housing development in New York City. The statue depicts a barefoot and shirtless young George, "the plant doctor," sitting in his wild garden, plant in hand and looking toward the sky. The statue is intended to remind visitors of "the curiosity this young boy had for this specific environment," as well as his larger love of nature.[478] It is situated on a circular plaza edged by a stone wall near Carver Branch (Figure 194). The Boy Carver statue has remained in its original location since installed along the Carver Trail in 1960, and is the symbolic centerpiece of the national monument.

In 1981, the Boy Carver statue was professionally cleaned.[479] It was again cleaned as part of an extensive conservation effort conducted in association with the park's statuary in 2009.

477. George Washington Carver National Monument fixed property records, as provided by Lana Henry, December 2014.

478. Cultural Landscape Inventory, 19–20, 23, 45.

479. Superintendent's Annual Report, 1981.

Aspects of the setting have changed since the statue was installed, including the route of the trail and the extent and density of woodlands surrounding the site. The sculpture otherwise retains integrity of location, design, materials, workmanship, feeling, and association, and contributes to the significance of the historic landscape.



FIGURE 194. The Boy Carver statue along Carver Branch.

Cemetery features. The Carver family cemetery (ID LCS 005039; HS-31) contains a total of 34 marked and unmarked burials. All of the gravestones currently present within the cemetery are replacements. As such, the gravestones do not possess integrity and do not contribute to the significance of the historic landscape.

Gravestones located within the cemetery range from small rectangular tablets marked with initials, to larger curved tablets carved with epigraphs and decorative etchings (Figure 195). The stones mark the graves of family members, such as Susan and Moses Carver, as well as community members. Moses Carver is known to have placed a memorial marker for George's brother Jim in the cemetery.

When the National Park Service acquired the property, there were twenty-one grave markers present within the cemetery. A 1973 Historic Resources Study indicates that gravestones were regularly replaced between 1953 and 1973 when they became deteriorated.[480] It is likely that many of the stones suffered damage after the stone perimeter wall was removed in the 1930s. With the wall gone, cattle were most likely in the habit of grazing within the cemetery.[481] Little is known about the replacements made prior to 1973.



FIGURE 195. Replica headstones in the cemetery.

Due to deteriorated conditions and vandalism, ten gravestones and one footstone are known to have been replaced in 1979. The Carver Association paid for the replacement stones.[482] In 1982, many of the gravestones were cleaned.[483] In 1983, additional headstones were replaced due to their deteriorated condition.

By the late 1980s, most of the headstones were broken or damaged following several incidents of vandalism. All were removed in 1989. There were no headstones within the cemetery until 1995, when the current replicas were installed. [484] The Wommack Monument Company of Monett, Missouri, fabricated the replacement markers.[485] The marble stones removed in 1989 are stored in the park's museum archives.

The character of most of the original grave markers is not currently known. During the early-

480. Draft HRS (September 2013), 176; Toogood, 40.
481. Harrington et al., 27.
482. Superintendent's Annual Report, 1979.
483. Superintendent's Annual Report, 1982.
484. Long-Range Interpretive Plan, 34.
485 LCS.

to mid-nineteenth century, many graves were traditionally marked with field stones or wood planks. Later, stones began to be inscribed with information about the deceased. Commercially carved stones did not become available until after Reconstruction.

The cemetery contains familial clusters of closely-space graves. Carver also allowed community members who were not family members to be buried there. This was based on his civic mindedness rather than his religious beliefs.[486] Although there is no affiliation with a specific denomination apparent today, the east-west orientation of the graves suggests Christian beliefs or traditional views of the afterlife whereby bodies were oriented to face east, the direction of Christ's second coming. The original entrance into the cemetery was near the center of the east wall to mark this important cardinal direction.

The burial ground was likely maintained using traditional practices, such as filling in subsidence and mounding fresh dirt on graves and removing grass and weeds. Active maintenance of the cemetery likely ended with Shartel ownership. The stone wall was removed in the 1930s, permitting cattle to graze around the graves and gravestones.

Signs and exhibits. Several types of signs and exhibits are present within the park. These range from regulatory, directional, identity, and wayfinding signage, to waysides and other exhibits and plaques. Sign styles and locations have changed several times since 1953. The only feature that survives from the early park development period is a dedication plaque set within a boulder near the visitor center. All other signs and exhibits postdate the period of significance and constitute non-contributing resources.

Birthplace Cabin exhibit. The Birthplace Cabin site (HS-28) is located on a flat grassy knoll above the spring associated with Carver Branch. A wooden structure has been placed on the purported site to mark George Washington Carver's birthplace. Although the accuracy of this site has since been called into question, it continues to be interpreted using a 2-1/2-foot high wooden frame outline of the footprint of the cabin. The structure contains an opening at a suggested doorway that allows visitors to stand inside the exhibit. The cabin outline is a 2011 replacement of an earlier exhibit designed to reflect information collected during personal interviews conducted with local residents in the 1950s (Figure 196). The exhibit is interpreted with a wayside exhibit.[487]



FIGURE 196. The site of the birthplace cabin is interpreted through a wooden frame outline of the cabin structure.

Moses Carver farm exhibits. Several interpretive exhibits and items used for demonstrations are located in and around the yard of the Moses Carver house, including picket-fence-edged garden beds (refer to Figure 77), a plow (Figure 197), an ash hopper (Figure 198), a wood pile, and a stationery fire pit encircled by a metal band. In 2010, the Midwest Archeological Center approved the location of the fire pit.

486. Ibid., 32.

487. Long-Range Interpretive Plan, 17; Superintendent's Annual Report, 2011.



FIGURE 197. A plow exhibit in the Moses Carver house environs.



FIGURE 198. An ash hopper exhibit in the Moses Carver house yard.

Wayside Exhibits. A series of wayside exhibits are located along the Carver Trail that provide a chronological interpretation of George Washington Carver's life. The exhibits consist of eleven signs: one upright trailhead sign at the beginning of the Carver Trail just outside the visitor center, and ten low-profile exhibits along the Carver Trail (Figure 199 and Figure 200).[488] They feature porcelain enamel information panels set within aluminum frames.



FIGURE 199. An upright trailhead sign at the beginning of the Carver Trail.



FIGURE 200. A low-profile wayside exhibit along the Carver Trail.

Signage associated with the Carver Trail has changed several times over the years. In 1963, the Superintendent's annual report noted that a permanent signing program had been completed along the trail. The signs were described as composed of green phenolic plastic with white letters. These signs were used for plant identification and marking points of historical interest along the trail. They were considered to be attractive, permanent, and easy to read. There were also wooden routed signs located along the trail that conveyed historical information. The report also mentioned the presence of an audio station that was located in a column along the rock wall facing the Boy Carver statue. The audio box was removed when new trail orientation was

488. Long-Range Interpretive Plan, 42–44.

installed, and eventually incorporated into the base of the Carver bust.[489]

The green and white botanical signs were replaced with brown signs with white text to conform to a new overall park sign plan in 1978.[490] In addition, the large standing trail signs along the Carver Trail were repaired and refurbished.[491] In 1981, the park's waysides were described as being repainted and rebraced, but by 1983 had been replaced by new interpretive signs. The new signs were Permaloy style. They replaced earlier wooden routed signs described as being twenty years old at the time. The new signs provided more information than the old signs. The park's wayside exhibits were again replaced in phases between 2000 and 2011 with the current wayside exhibits.

Dedication Plaque. A plaque commemorating the establishment of the national monument is located near the Carver Trail trailhead. The 1 foot, 6 inch by 2 foot bronze Dedication Plaque (LCS ID 005037; HS-27) is set in a stone boulder near the birthplace cabin site (Figure 201).[492] The plaque was purchased from Michaels Art Bronze Co. in 1959.[493]

The text of the plaque reads:

> Within this area by an Act of Congress of July 14, 1943, is preserved the birthplace of George Washington Carver who rose from slavery to become a distinguished scientist and great force in creating racial understanding. Erected 1953 National Park Service, United States Department of the Interior.

The plaque was first cleaned in 1981. In 2009, the plaque received professional conservation assessment and treatment.

With diminished integrity of location, the plaque contributes to the significance of the park landscape.



FIGURE 201. The Dedication Plaque, set in a large stone.

Memorial plaque. An inscribed stone memorial plaque is situated close to the dedication plaque boulder (Figure 202). The text of the tablet reads: "In memory of past chairpersons of the Carver Birthplace Dist. Assoc. Inc." The plaque was installed during the tenure of Superintendent Gentry Davis, circa 1981-1982. The plaque postdates the early park development period of significance.



FIGURE 202. A Memorial Plaque commemorates chairpersons of the Carver Birthplace District Association.

489. Superintendent's Annual Report, 1963, and personal communication, Lana Henry, December 2014. See also Superintendent's Annual Report, 1982, and Drawing 397-41003A, "Site Details, Remodel and Expand Visitor Center," Sheet 18A, Sub Sheet L6.0, 3/1/05, 2006.
490. Superintendent's Annual Report, 1978.
491. Superintendent's Annual Report, 1979.
492. Cultural Landscape Inventory, 23, 45–46.
493. Personal communication, Lana Henry, December 2014.

Quote Stones. Inscribed polished granite stones featuring quotations attributed to George Washington Carver have been placed along the Contemplative Loop Trail around Williams Pond and in the planting beds that edge the concrete walk north of the visitor center near the Carver Trail trailhead, and in the flower beds nesting around the south side of the visitor center (Figure 203). The engraved quote stones do not directly tie into the life progression interpretation offered by the wayside exhibits along the Carver Trail, but offer a glimpse of Carver's personal philosophy and provide opportunities for contemplation.[494] The quote stones were installed after 2001.

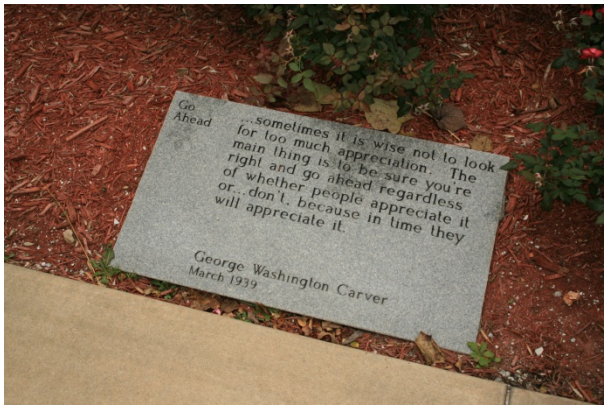


FIGURE 203. Granite quote stone located near the visitor center.

Identity Signs. A park identity sign marks the park entrance along Carver Road (Figure 205). The brown sign features carved white letters and a large park service shield and is supported by black metal posts. The sign is edged by a timber-edged planting bed.

The first park identity sign was installed in 1960 in association with the entrance gate.[495] The original sign was replaced in 1976 with a large, double-faced identity sign along Highway V fabricated by Federal Prison Industries.[496] In 1978, the park entrance sign was refurbished and relocated to a more visible location near the front entrance gate.[497] In 1991, a new wood routed park entrance sign was installed.[498] The current sign was installed in 2009.



FIGURE 204. The original park identify sign. Source: George Washington Carver National Monument photo collection.

In 1978, a new sign was erected to mark the location of the new park office area within the park housing complex, while a directional sign for visitors placed at the junction of Highway V and Taylor Road. In 1983, a new sign was installed at the entrance to the administration building.[499]



FIGURE 205. The current park entrance sign along Carver Road.

Directional, Regulatory, and Traffic Signs. Other signs found in the park include small directional signs on metal posts along the Carver Trail (Figure 206), and regulatory and traffic signs along the park entrance road and picnic area access drive.

494. Cultural Landscape Inventory, 23–24, 46.
495. Superintendent's Annual Report, 1960.
496. Superintendent's Annual Report, 1976.
497. Superintendent's Annual Report, 1978.
498. Superintendent's Annual Report, 1991.
499. Superintendent's Annual Report, 1983.

Directional and wayfinding signage has also been updated several times since the park opened. In 1991, for example, new directional and informational signs were installed on park roads after a pavement rehabilitation project was completed.[500] In 1997 new park information and directional signs were installed outside the park to assist visitors.



FIGURE 206. A small direction sign along the Carver Trail.

Missing Small-scale Features.

In 1982, a weather station was installed in the park. It is not known when this feature was removed from the park.

Contributing Small-scale Features.

- Boy Carver statue
- Carver bust
- Dedication plaque
- Lighting at park housing

Non-contributing Small-scale Features.

- Flagpole at visitor center
- Flagpole at park housing complex
- Mailbox at park housing complex along Carver Road
- Picnic tables
- Stone benches
- Birthplace cabin outline
- Park identity sign at park entrance along Carver Road
- Quotation stones
- Wayside exhibits
- Garden beds at Moses Carver house
- Cemetery headstones
- Memorial plaque

500. Superintendent's Annual Report, 1991.

3.3.12 Archeological Resources

Six archeological inventories have been conducted within the monument since 1953. They include:

- *Report of Archaeological Investigations George Washington Carver N.M., Memorandum for the National Park Service, Region Two*, prepared by Paul L. Beaubien of the National Park Service, 1953;
- *Archaeological Investigations at the George Washington Carver N.M., Missouri, 1958*, by Robert W. Neuman, Missouri Basin Project, Smithsonian Institution, 1958;
- *A Magnetic Survey of Portions of the George Washington Carver N.M.*, by John W. Weymouth, Department of Physics and Astronomy, University of Nebraska-Lincoln, 1975;
- *Archeological Investigations at George Washington Carver N.M., 1975–1976*, by Ervan Garrison and Robert T. Bray, Department of Anthropology, American Archaeology Division, University of Missouri-Columbia, 1976;
- *Archeological Investigations at George Washington Carver N.M., 1978*, by E. Garrison, R. T. Bray, and David Denman, Department of Anthropology, American Archaeology Division, University of Missouri-Columbia, 1978; and
- *An Intensive Archeological Survey of George Washington Carver National Monument*, by David W. Benn, Center for Archaeological Research, Southwest Missouri State University, Springfield, 1981.[501] Benn updated and enlarged on the work of previous investigators in 1982.

Additionally, in 1994, a level 1 survey of the 30-acre zinc and lead mine parcel was conducted, for which no report has been reviewed.[502]

Based on review of previous investigations, in 1999 the National Park Service prepared an Integrated Management Plan for the archeological resources associated with the park. The plan identified twelve historic and prehistoric sites within the boundaries of the park, including a complex site associated with Carver's birthplace cabin, to be managed as significant sites.[503] The other sites included the Gilmore farm, Williams farm, south boundary site, several lithic flakes and scatters, and the third Moses Carver house.

Later, investigations conducted in 2004 to assess the information potential of the Area of Potential Effect (APE) for the expansion of the visitor center yielded no additional archeological resources.[504]

In 2006, MWAC helped to complete crucial archeological preservation work, including site condition assessments on all known archeological sites, shovel tests along the park entrance road and in developed areas, and geophysical surveys of the cemetery and birthplace cabin site.[505]

In 2011, MWAC surveyed the park, including geophysical surveys of the developed area east of the visitor center, Williams Homestead (site 23NE121), mapping and geophysical survey of the cemetery, and pedestrian inventory of the 30-acre mine site parcel.[506] In 2012, MWAC also performed fieldwork within the developed core and the Williams Homestead area.

Archeological Sites.

Moses Carver farm. Investigations conducted to date have yielded little information regarding the agricultural landscape of the Carver era. It is possible that disturbance by subsequent owners of the property has led to diminishment of its information potential.[507]

501. Superintendent's Annual Report, 1981.
502. Superintendent's Annual Report, 1994.
503. Woolpert, 2-9.
504. Woolpert, 2-10.
505. Superintendent's Annual Report, 2006.
506. Superintendent's Annual Report, 2011.
507. Harrington et al., 5.

Carver family cemetery. One of the archeological sites that has yielded important information is the Carver family cemetery. The Carver family cemetery occupies about one-tenth of an acre in a roughly rectangular shape in the southwest corner of the park. It is surrounded by a replica 4-foot-high dry-laid stone wall. Although as many as forty graves may be present, only twenty-one graves had inscribed markers when the National Park Service acquired the property. At least two of these were located during archeological investigations in 1958, when subsided evidence of head and foot markers of unmodified limestone rock was found below the surface of the ground. The cemetery contains the graves of several members of the Carver family, including Moses and Susan.[508] Moses Carver had apparently set up an understanding in the community that the cemetery was accessible for burials, but never officially deeded it to the county.[509]

In addition, as noted by George Washington Carver:

> My parents were both slaves. Father was killed shortly after my birth while hauling wood to town in an ox wagon. I had three sisters and my brother I know to be dead only as history tells me, yet I do not doubt it as they are buried in the family burying ground.[510]

When the property was acquired by the National Park Service from the Shartel family, it was determined that although the original perimeter stone wall had been removed, the graves were still, for the most part, intact. The National Park Service conducted oral interviews with knowledgeable local residents to learn more about the cemetery's history. Based on research, the cemetery had continued to be deeded to family members rather than subsequent owners, and protected in a special clause.

The location of the original stone wall was determined through archeological investigation. However, the opening as originally designed in 1954 on the eastern side has since been moved to the north to coincide with the location of the Carver Trail.

The cemetery remains an important archeological site that contributes to the significance of the park landscape.

Birthplace cabin site. The cabin where George Washington Carver was born into slavery was first occupied by Moses and Susan Carver, who later moved to a larger house. The original cabin is thought to have measured approximately 14 feet by 14 feet in plan, and featured a single interior space. The location of the cabin is thought to have sat at the edge of the sloped Carver Branch ravine in close proximity to Carver Spring. The National Park Service conducted archeological investigations in 1953 to locate the cabin foundation.[511] Investigations by NPS archeologists were undertaken through 2011, 2012, and 2014 and are continuing. Although the earlier investigations suggested the cabin was located at the site of the present-day exhibit, subsequent investigations suggest that the actual site is located elsewhere.

Williams and Gilmore farmstead sites. The Williams and Gilmore cabins are two additional structures thought to have stood on the farm and been occupied by members of the Carver family. Both have been attributed with sites (the Williams Cabin Site, HS-33, and Gilmore Cabin Site, HS-34), although the exact locations of the dwellings are not currently known and further archeological investigation may be required to locate them.[512]

508. Cultural Landscape Inventory, 28.
509. Toogood, 39.
510. Toogood, 22.
511. Cultural Landscape Inventory, 28.
512. National Register nomination.

3.4 Assessment of Integrity

The primary objective of this integrity assessment section is to describe the extent to which George Washington Carver National Monument retains the ability to convey its historical associations with George Washington Carver, an important figure in American history. National Register Bulletin: *How to Apply the National Register Criteria for Evaluation* states that:

> Integrity is the ability of a property to convey its significance. . . . Historic properties either retain integrity (that is, convey their significance) or they do not. Within the concept of integrity, the National Register criteria recognize seven aspects or qualities that, in various combinations, define integrity.
>
> To retain historic integrity a property will always possess several, and usually most, of the aspects. The retention of specific aspects of integrity is paramount for a property to convey significance. Determining which of these aspects are most important to a particular property requires knowing why, where, and when the property is significant.[513]

Assessment of integrity is based on an evaluation of the existence and condition of physical features dating from a property's period of significance, taking into consideration the degree to which the individual qualities of integrity are present. The seven aspects of integrity identified by the National Register of Historic Places are location, design, setting, materials, workmanship, feeling, and association.

Based on the assessment of the criteria for evaluation, relevant areas of significance, and historic and existing conditions, George Washington Carver National Monument possesses sufficient integrity for the identified periods of significance (1865–1876 and 1943–1960) to convey its important historical associations with George Washington Carver, as well as his commemoration, through establishment of the first national monument dedicated to someone other than a United States president. It was also the first national park unit associated with an African American. The primary significance of the site is related to George Washington Carver's birth and early life experiences on the Moses Carver farm. The landscape is considered to reflect the location, setting, feeling, and association of Carver's formative years.[514] Although the property continues to convey integrity of location, setting, feeling, and association, it has lost integrity of design, materials, and workmanship for this period, however. Patterns of spatial organization involving field and forest compositions, natural resources, such as the three stream branches and the Carver Spring, the landform and topography, and the sites of former homesteads and the cemetery help to convey these associations.

The national monument that commemorates and honors Carver was established in 1943, and developed to accommodate visitors between 1953 and 1960. The gestures of providing visitors with access, parking, contact with park administrators and interpreters, exhibits, and a trail system designed to connect visitors with Carver's experiences on the farm were all developed during this period, along with other features that supported park operations. While integrity of design is diminished, much of the integrity of workmanship and materials has been lost due to post 1960s changes. Despite several changes that have occurred in association with these early park developments, George Washington Carver National Monument continues to convey integrity of location, setting, feeling, and association for its establishment period.

513. National Register Bulletin: *How to Apply the National Register Criteria for Evaluation*, 44.

514. National Park Service, Cultural Landscape Inventory, "George Washington Carver National Monument," 2010, File H3019, ACF, GWCA. Quote on p. 20.

3.5 FMSS Table of Resources

The relationship between features identified on behalf of the Cultural Landscape Report and those tracked by the National Park Service as part of the Facility Management Software System (FMSS), a numbering and naming convention used within the park for everyday maintenance issues, is indicated herein to facilitate park resource stewardship.

1

George Washington Carver National Monument
CLR-FMSS Crosswalk Table for Analysis and Evaluation

CLR Feature Name	FMSS Asset Type	FMSS Location Record	FMSS Asset Record	LCS Number	Cultural Landscape Evaluation	Historic Character	Deficiency (Historic)	Additional Guidance	Qty	UM	Deficiencies	DM/ Stabilization and/or Treatment [Preservation or Restoration]	Recommended Compliance Needs	RM/ Preservation Maintenance	Notes
Spatial Organization															
Picnic Area	3100	71214		N/a	C	Turf grass understory, shade tree overstory. Picnic area access road and parking.			1		*information to be added as part of future submissions*				
Cultural Landscape	3100	71212			C	fields and woodlands, Carver Trail with exhibits			1						
Carver Family Cemetery	3100	71212			C	Walled area containing grave markers			1						
Circulation															
Park Entrance Road/Route 0010	Roads (1100)	71197	1031916	N/a	C	Asphalt paved as presently. Area of pavement has increased since original installation			*to be added*						
Culvert beneath Park Entrance Road	Roads (1100)	71197	64700	N/a	C	galvanized steel			31.3 ft; 24 inches						
Visitor Parking Area/Route 0900A	Parking Areas (1300)	79609	1028838	N/a	C	Asphalt paved as presently. Area of pavement has increased since original installation			*to be added*						
Residence Road	Roads (1100)	235985	1252757	N/a	C	Asphalt paved as presently. Area of pavement has increased since original installation			22 ft; 0.13 miles						
Housing Parking Area #1/Route 0903A	Parking Areas (1300)	71201	1032158	N/a	?				*to be added*						
Housing Parking Area #1/Route 0903A	Parking Areas (1300)	71201	407699	N/a	?				*to be added*						
Culvert associated with Housing Parking Area	Parking Areas (1300)	71201	525919	N/a	?	galvanized steel			57 ft; 12 inches						
Picnic Area Road	Roads (1100)	235986	1252764	N/a	C	Has been repaved with asphalt, otherwise similar to historic			22 ft; 0.06 miles						
Picnic Area Parking/Route 0901	Parking Areas (1300)	71200	1032162	N/a	C	Asphalt paved as presently. Area of pavement has increased since original installation			*to be added*						
Picnic Area Parking/Route 0901	Parking Areas (1300)	71200	408296	N/a	?				*to be added*						
Maintenance Area Road	Roads (1100)	235987	1252765	N/a	C	Was part of the Mission 66 development that supported park operations			22 ft; 0.05 miles						
Maintenance Parking Area/Route 0902	Parking Areas (1300)	104140	1032166/409	N/a	C	Was part of the Mission 66 development that supported park operations			*to be added*						
Employee Parking Area	Parking Areas (1300)	235988	1252766	N/a	NC	Parking occurs in an ad hoc manner. This area was not historically used for parking.	Parking for employees should be formalized.		*to be added*		*information to be added as part of future submissions*				
Sidewalks (GWCA Grounds)	3100	71213	177855	N/a	C				57 ft; 12 inches						
Carver Trail (concrete surface)	Trails (2100)	71193	167867	N/a	C	Originally gravel surfaced and edged by younger trees	Alignments, surfacing materials, and edge conditions have changed in some locations		22 ft; 0.06 miles						

George Washington Carver National Monument
CLR-FMSS Crosswalk Table for Analysis and Evaluation

CLR Feature Name	FMSS Asset Type	FMSS Location Record	FMSS Asset Record	LCS Number	Cultural Landscape Evaluation	Historic Character	Deficiency (Historic)	Additional Guidance	Qty	UM	Deficiencies	DM/ Stabilization and/or Treatment [Preservation or Restoration]	Recommended Compliance Needs	RM/ Preservation Maintenance	Notes
Carver Trail (gravel surface)	Trails (2100)	71193	168050	N/a	C	Originally gravel surfaced and edged by younger trees	Alignments, surfacing materials, and edge conditions have changed in some locations		*to be added*						
Carver Trail (crum rubber surface)	Trails (2100)	71193	168021	N/a	C	Originally gravel surfaced and edged by younger trees	Alignments, surfacing materials, and edge conditions have changed in some locations		5 ft; 0.17 miles						
Carver Trail (masonry/stone surface)	Trails (2100)	71193	395423	N/a	C	Originally gravel surfaced and edged by younger trees	Alignments, surfacing materials, and edge conditions have changed in some locations		12	FT					
Contemplative Loop Trail (tread surface)	Trails (2100)	71196	167608	N/a	NC				.2 miles; 4 ft						
Contemplative Loop Trail (timber deck surface)	Trails (2100)	71196	167870	N/a	NC				0.01 miles; 8 ft						
Vegetation															
Turf and tree groves between the park entrance and the visitor center	Maintained Landscape (3100)	N/A			C	FENCGATE	Yes		540	FT	*information to be added as part of future submissions*				
Prairie	Maintained Landscape (3100)	N/A			NC	FENCGATE	Yes		653	FT					
Buildings and Structures															
Visitor Center Building #21	Buildings (4100)	71204			NC										
Maintenance Shop Building #22	Buildings (4100)	71205			C										
Old Administrative Office Building #23	Buildings (4100)	71206			C										
Old Visitor Center & RM Office Building #24	Buildings (4100)	71207			C										
Seasonal Quarters Building #25	Buildings (4100)	71209			C										
Moses Carver House (HS-5)	Buildings (4100)	71210			C										
Fire Pump Building	Buildings (4100)	88870			U										
Williams Pond dam	6100	98943		70024; HS-37	NC	1930s era dam rebuilt by the National Park Service in 1978 with new materials, enlarged pond.									
Carver Family Cemetery wall	3100	71211	LCS-70020; HS-31A		C	Wall rebuilt by the National Park Service in 1954. Has since deteriorated in condition. Entrance has been relocated away from historic east side.									
LP Gas Fuel System-tanks	5700	71192	167415; 167427	N/a	NC	Installed post 1960	N/a		2	1000 gallon					
Carver Trail Bridge #1	2200	71194	167928	N/a	NC	Installed post 1960			0.01 miles; 7.5 ft						
Carver Trail Bridge #2	2200	71195	167943	N/a	C	Installed post 1960			0.01 miles; 7.5 ft						
Carver Trail bridge #3	2200; Trails (2100)	71193	167809	N/a	C				8	FT					

George Washington Carver National Monument
CLR-FMSS Crosswalk Table for Analysis and Evaluation

CLR Feature Name	FMSS Asset Type	FMSS Location Record	FMSS Asset Record	LCS Number	Cultural Landscape Evaluation	Historic Character	Deficiency (Historic)	Additional Guidance	Qty	UM	Deficiencies	DM/ Stabilization and/or Treatment [Preservation or Restoration]	Recommended Compliance Needs	RM/ Preservation Maintenance	Notes
Carver Trail bridge #4	2200; Trails (2100)	71193	167818	N/a	C				8	FT					
Carver Trail bridge #5	2200; Trails (2100)	71193	167840	N/a	C				7	FT					
Carver Trail bridge #6	2200; Trails (2100)	71193	167848	N/a	C				7	FT					
Carver Trail bridge #7	2200; Trails (2100)	71193	167864	N/a	C				7	FT					
Carver Trail bridge #8	2200; Trails (2100)	71193	167867	N/a	C				8	FT					
Carver Trail footbridge	2200; Trails (2100)	71193	394566	N/a	C				166 ft; 7.5 FT						
Carver Trail retaining wall	Trails (2100)	7193	591519	N/a	C			dry stone/dry stack	150 ft; 2 ft						
Park boundary fencing with gates	3800	91874	203158; 525896												
Chain link fence with gate around LP Gas Tanks	5700	71192	526280; 526285	N/a	NC	not historic			6	FT	*information to be added as part of future submissions*				
Small-scale Features															
Wayside exhibits	7500	236275	385324 etc.	N/a	NC	Installed 2012	N/a		21	EA					
Boy Carver statue	7100	99249		LCS-5038; HS-30; CLI-120900	C	Sculpture mounted on a boulder installed in 1960 on trail margin. Trail more formal than originally, and site more wooded than historically	No		1	EA					
Dedication plaque	7100	99248		5038; HS-27	C	Set into boulder along trailhead of Carver Trail in open grassy knoll between the visitor center, picnic area tree grove, and Carver Branch ravine. More open than was historically due to loss of elm trees to disease.	Yes		330	SF					
Carver Bust (and base)	7100	71782	527277; (base 526174)	LCS-5036; HS-26; CLI-120898	C	Has been relocated three times, with base replaced similarly.	Yes		320	SF					
Benches (concrete) along Carver Trail	2100	71193	168090	N/A	NC				54	INCH					
Benches (concrete) along Contemplative Loop	2100	71196	393679	N/A	NC				2; 54 inches						
Benches, wood, Carver Trail	2100	71183	394662; 39685; 394695	N/a	NC				3; 60 IN (1); 72 IN (2)		*information to be added as part of future submissions*				
Benches (masonry/stone) along Contemplative Loop	2100	71196	573278	N/A	NC				1; 60 inches						
Benches, wood, Contemplative Loop	2100	71196	394035	N/a	NC				1; 72 inches						
Flagpole at visitor center	4100	71204	173106	N/a	NC										
Flagpole at housing area	4100	71207	173103	N/a	C										
Bench near visitor center (grounds) - steel/cast iron	3100	71213	504324	N/a	NC				1; 72 inches						

George Washington Carver National Monument
CLR-FMSS Crosswalk Table for Analysis and Evaluation

CLR Feature Name	FMSS Asset Type	FMSS Location Record	FMSS Asset Record	LCS Number	Cultural Landscape Evaluation	Historic Character	Deficiency (Historic)	Additional Guidance	Qty	UM	Deficiencies	DM/ Stabilization and/or Treatment [Preservation or Restoration]	Recommended Compliance Needs	RM/ Preservation Maintenance	Notes
Signs (directional, regulatory, wayfinding) Carver Trail	2100	71193	385557; 385663; 385676; 389006; 389070; 391225; 391260	N/a	NC				7	EA					
Signs (road) Entrance Road	1100	71197	526139; 526141; 526143; 526147	N/a	NC				4	EA					
Signs (road) Visitor Center Parking Area	1300	79609	526160; 526162; 526163	N/a	NC				3	EA					
Signs (road) Picnic Area Parking Area	1300	71200	526148; 526151	N/a	NC				2	EA					
Signs (road) Housing Parking Area	1300	71201	524714; 526278	N/a	NC				2	EA					

Chapter 4: Affected Environment

4.0 Introduction

This chapter specifically discusses the resources that could be potentially impacted by the proposed action alternatives/treatment recommendations. These resources were identified and described as impact topics in Chapter 1. Identification was based on the issues raised by agencies and the public during scoping; site conditions; federal laws, regulations, and Executive Orders; NPS *Management Policies 2006* and topics specified in Director's Order 12 and Handbook (NPS 2001); and park specific resource information.

Natural resources examined in detail at George Washington Carver National Monument include soils; water quality; vegetation; wildlife and wildlife habitat; rare, threatened, and endangered species; wetlands; and floodplains. Cultural resource types evaluated include cultural landscapes, historic structures, and archeological resources. The remaining topics examined in detail are visual resources, visitor use and experience, and park operations.

4.1 Natural Resources

4.1.1 Soils

The soils at George Washington Carver National Monument are shallow with moderate to high permeability and tend to develop from bedrock of chert. Many of these soils (Hoberg, Keeno, and Wanda) are silt loams formed in cherty limestone residuum and occur on gently to moderately sloping lands on uplands and terraces. They are moderately well to well drained, and have moderate fertility and a low or acidic pH. The Keeno silt loams have a low available water capacity and a root zone often restricted by fragipan to a depth of 18 to 27 inches. In contrast, the Wanda silt loam series has highly available water capacity. These soils tend to occur adjacent to each other and comprise a large percentage of the site's soils (Figure 207). These moderately to well drained soils on gently sloping lands can be classified as dry-mesic to mesic. They most likely formed under the tallgrass prairie and are suitable for prairie restorations.

The Secesh, Cedargap, and Carytown silt loams each occur on soils along streams or in depressions. The Cedargap series is frequently flooded but extends outward from the streams and has rapid permeability, whereas the Secesh soils tend to hug the lower stream terraces in locations were flooding is relatively rare and have moderate permeability. The Carytown soils typically occur in depressed planes in uplands and have slow runoff and poor permeability. They often sit above perched water tables. At George Washington Carver National Monument, Carytown soils occur in small pockets away from the lower stream terraces and are currently supporting wetland vegetation. The Secesh soils support the largest areas of woodlands on the site, but they are also capable of supporting grassland vegetation.[515]

515. Harrington et al., 50–51.

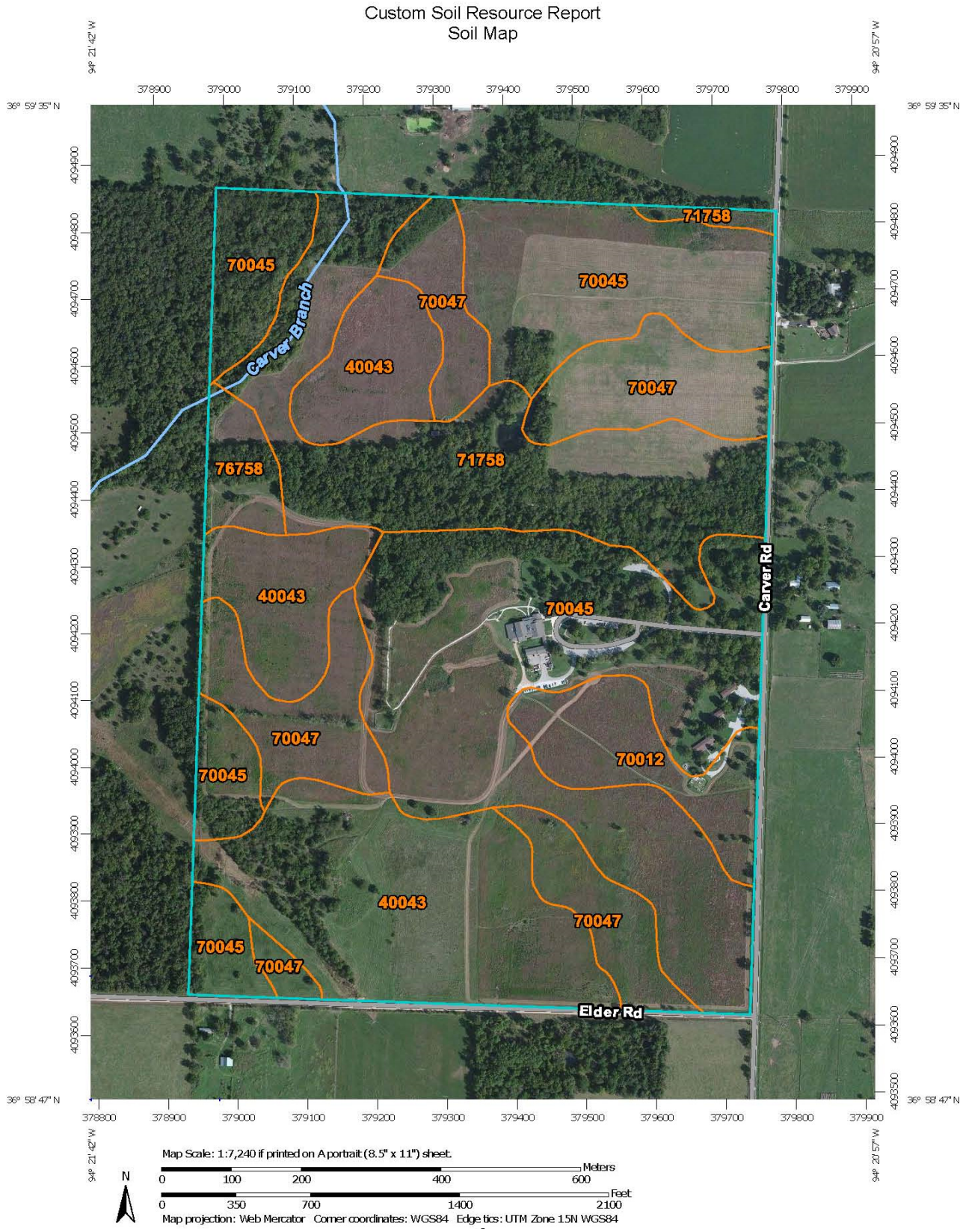


FIGURE 207. Soils map of George Washington Carver National Monument. Source: C*ustom Soil Resource Report for Newton County, Missouri, George Washington Carver National Monument.*

Soils Map Unit Legend

Newton County, Missouri (MO145)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
40043	Carytown silt loam, 0-2 percent slopes	52.3	21.8%
70012	Hoberg silt loam, 2 t0 5 percent	11.8	4.9%
70045	Keeno gravelly silt loam, 3 to 8 percent slopes	94.6	39.4%
70047	Wanda silt loam, 2-5 percent slopes	36.6	15.2%
71758	Secesh-Cedargap complex, 1 to 3 percent slopes, frequently flooded	40.3	16.8%
76758	Secesh-Cedargap complex, 0 to 2 percent slopes, frequently flooded	4.8	2.0%
Totals for Area of Interest		**240.3**	**100.0%**

4.1.2 Vegetation

The park manages grassland, forest, and the intensively manicured developed area for visitor use (manicured lawns, picnic grounds, tree groves, buildings, and paved areas). The park currently manages 130 acres as restored grassland prairie. The restored prairie falls within the former agricultural fields of the Moses Carver and Shartel farmsteads. It has been based on more than 35 years of work conducted by the NPS in conjunction with several partnering organizations.

Forested areas occur primarily along streams, but extend into the uplands. The picnic area, visitor center, and former housing complex are intensively managed and manicured, with some proportion of those areas planted in non-native trees and shrubs and manicured lawn. (Figure 208).[516]



FIGURE 208. Ornamental non-native plantings around the visitor center.

The park's prairie units are in a highly disturbed state due to previous intensive land uses, such as cultivation or grazing. The restored prairies which contained few if any patches of remnant prairie, resulted from restoration efforts initiated in 1981 on the former pastures and cropland (Figure 209). Prior to the restoration, these areas supported high numbers of non-native and annual plant species. The prairies at the park reflect the

516. National Park Service, Environmental Assessment, Assessment of Effect, Fire Management Plan, George Washington Carver National Monument, Missouri, 2004, 21–22.

prominence of prairies in the pre-settlement landscape of Newton County, Missouri. Following increasingly mechanized commercial farming in the late nineteenth and early twentieth century, the prairie on the site was plowed and grazed until 1943. During the nearly 70 years of NPS stewardship, management of the restored prairies has shifted from farming and pasture management to restoration of native prairies.



FIGURE 209. Prairie restoration units occur throughout the monument site.

The woodlands of the monument are considered part of the oak-hickory forest association that is characteristic of most forests in southwestern Missouri. The park woodlands are small in area and no section is more than approximately 20 acres. They show a variation of this mix, with proportionally small amounts of oak and very little hickory. A high occurrence of American elm *(Ulmus americana)*, hackberry *(Celtis occidentalis)*, and Osage orange *(Maclura pomifera)* is indicative of some form of disturbance, most likely grazing and/or plowing. Other species found within the woodlands include black cherry *(Prunus serotina)*, black walnut *(Juglans nigra)*, hawthorn *(Crataegus* spp.*)*, burr oak *(Quercus macrocarpa)*, red cedar *(Juniperius virginiana)*, and ash *(Fraxinus pennsylvania)*. These are indicative of a lowland early succession community of an oak-hickory forest.[517]

While prairie vegetation has been established, exotic plant species have also become established and may impede successful prairie restoration. The invasive Japanese honeysuckle (*Lonicera japonica*) and tartarian honeysuckle (*L. tartarica*) are abundant in the woodlands; while Johnson grass (*Sorghum halepense*), crown vetch (*Securigera varia*), and lespedza (*Lespedeza cuneata*) have colonized prairies at George Washington Carver National Monument. The high abundance of thistle (*Cirsium* spp.) on adjacent lands is also a potential problem. Extensive grazing on surrounding farms invites exotic species establishment and growth. Encroaching native woody plants include sumac (*Rhus* spp.), blackberries (*Rubus* spp.), woody briars (*Smilax* spp.), and grape vine (*Vitus* spp.), which are also invading restored prairies. Osage orange (*Maclura pomifera*) is a common invasive tree, particularly in the woodlands on the northwest side of the park. Multiflora rose (*Rosa multiflora*) is common in both woodland and grassland habitats in the park.[518]

An area of special concern is the section referred to as Harkins woods, located in the northwest corner of the site (Figure 210).[519] 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. Examples include white ash (*Fraxinus americana*), mad dog skullcap (*Scuttelaria lateriflora*), small passionflower (*Passiflora lutea*), monkeyflower (*Mimulus alatus*), ground ivy (*Glechoma hederacea*), and Palmer hawthorn (*Crataegus palmeri*).[520]

517. Ibid.
518. Gust M. Annis et al., 20–21, 53.
519. Barry A. Jones, *Vascular Plant Inventory, George Washington Carver National Monument* (Republic, Missouri: Heartland Network, Inventory and Monitoring Program, National Park Service, December 2004), 7–8.
520. Jones, 7–8.



FIGURE 210. Harkins woodlands northwest of the Moses Carver house and demonstration gardens.

4.1.3 Water Quality

There are three streams that flow through George Washington Carver National Monument and two spring branches that are completely contained within the park. Carver Branch, Harkins Branch, and Williams Branch are all tributaries of Shoal Creek. Williams Spring is currently inundated by Williams Pond. Carver Spring consists of a very short spring branch that flows into Carver Branch. Stream condition within the monument is generally good, though there may be mild impairment from threats outside of the park boundaries (Figure 211 and Figure 212).[521]

Water quality is best summarized in the results of the *Aquatic Invertebrate Monitoring at George Washington Carver National Monument* by David E. Bowles, dated June 2013. This report states:

> . . . data accumulated for the streams at George Washington Carver National Monument largely fall within acceptable ranges for water quality in southwestern Missouri. The relatively high pH values recorded for Carver Branch and Williams Branch in 2007 are likely due to probe error and not unacceptable readings.[522]

Aquatic habitats are an important part of the natural and cultural interpretive programs at the park. The water resources are home to several species of reptiles and amphibians. Plant and animal life within these waters are of great interest to visitors and are excellent educational tools for park interpreters. Park waters are influenced by adjacent land use such as agriculture and pasture. Because of the role water plays in the life cycle of many reptiles and amphibians, these species are good indicators of water quality. Amphibians are of particular interest due to their sensitivity to pollutants.[523] Protection of surface water and ground water is a management priority at the park and currently water quality meets or exceeds all applicable water quality standards. NPS and NPS-permitted programs and facilities are maintained and operated to avoid pollution of surface water and groundwater.



FIGURE 211. Stream branch on the site of George Washington Carver National Monument.

521. D. E. Bowles, "Aquatic Invertebrate Monitoring at George Washington Carver National Monument: 2005–2007" (Fort Collins, Colorado: National Park Service, 2009).

522. D. E. Bowles, "Aquatic Invertebrate Monitoring at George Washington Carver National Monument 2005–2010 Status Report" (NPS Heartland I&M Network, Republic, Missouri), 7.

523. Annis et al., 18–22.



FIGURE 212. Interpretation of Carver Spring.

4.1.4 Wildlife and Wildlife Habitat

Fauna of George Washington Carver National Monument are typical of old fields and disturbed woodlands in the Ozark Highlands. Birds are a major visitor attraction, and are the most intensively studied of the park's vertebrates. Forty-nine species of birds were recorded during site visits in May 2008.[524] The most common and widely distributed species was the Dickcissel (*Spiza americana*). The blue jay (*Cyanocitta cristata*), northern cardinal (*Cardinalis cardinalis*), northern mockingbird (*Minus polyglottos*), American robin (*Turdusmig ratorius*), American crow (*Corvus brachyrhynchos*), downy woodpecker (*Picoides pubescens*), and tufted titmouse (*Baeolophus bicolor*) are seen in the forest, developed areas, and forest edges. Common mammals include the opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), prairie vole (*Microtuso chrogaster*), and hisipid cotton rat (*Sigmodon hispidus*).[525] The herpeto fauna community is typical for disturbed prairies with some common deciduous forest species. Common species include the American bull frog (*Ranacates beiana*), southern leopard frog (*Ranaspheno cephala*), ringneck snake (*Diadophis punctatus*), and three-toed box turtle (*Terrapene carolina triunguis)*.

Pooled data from 2003, 2006, 2007, and 2010 document twenty-two fish species known to the park. These species generally were typical of small headwater streams, including southern redbelly dace (*Phoxinus erythrogaster*), central stoneroller (*Campostoma anomalum*), and green sunfish (*Lepomis cyanellus*).[526]

4.1.5 Rare, Threatened, and Endangered Species

There are no federally endangered or threatened species known to occur within the park, although several state-listed species of special concern have been documented within the park, or are associated with habitats present within the park. Three grasslands obligate birds—the Dickcissel, Eastern meadowlark, and grasshopper sparrow—have been recorded at the park. No forest obligate species have been recorded. The three most frequent species of concern and their habitats include the Dickcissel (tallgrass prairie or weedy fields), Indigo bunting (brush and low trees of overgrown fields), and Carolina wren (woodland understory).[527]

Other bird species identified by the park of concern include the northern harrier,[528] loggerhead shrike,[529] and painted bunting.[530] Species identified by the park as important for monitoring purposes, but which are not associated

524. Peitz (2009).
525. Robbins (2005).
526. Justus and Peterson (2005a).
527. D. G. Peitz, ""Bird monitoring at George Washington Carver National Monument, Missouri" (Fort Collins, Colorado: National Park Service, 2009); as summarized in Gust M. Annis, Michael DeBacker, David D. Diamond, Lee F. Elliott, Aaron J. Garringer, Phillip A. Hanberry, Kevin M. James, Ronnie D. Lee, Sherry A. Leis, Michael E. Morey, Dyanna L. Pursell, and Craig C. Young, "George Washington Carver National Monument Natural Resource Condition Assessment" (Fort Collins, Colorado: National Park Service, July 2011), 18.
528. Identified at the state level as S2E or imperiled; and at the federal level as G3G4 C or vulnerable, apparently secure, and a candidate for listing.
529. Identified at the state level as S2 or imperiled; and at the federal level as G4 or apparently secure.
530. Identified at the state level as S3 or vulnerable; and at the federal level as G5 or secure.

with state or federal listing, include the northern bobwhite quail and Henslow's sparrow.

One rare fish species—the Arkansas darter—was observed within the park during a 2003 fish survey.[531] "The Arkansas darter has been a candidate for federal listing as a threatened or endangered species and is considered a species of conservation concern by the State of Missouri."[532] The wood frog[533] is the only amphibian identified as a species of concern associated with park habitats, although it has not yet been observed in the park.

The state-endangered spotted skunk is another species that has not been observed within the park, although suitable habitat exists to support it. One insect of concern, the regal fritillary,[534] has been identified within the park. It is associated with tallgrass prairies and wet grassy areas within the central United States.

Plant species of concern noted within the park include royal catchfly,[535] observed in the park during a 2004 survey, and the American beakgrain,[536] observed in previous surveys but not during the 2004 survey. There are also five additional species of concern associated with park habitats that have not as yet been observed during survey efforts. They include *Geocarpon minimum*,[537] prairie false foxglove,[538] *Bromus latiglumis*,[539] graceful sedge,[540] and velvety tick trefoil.[541]

4.1.6 Wetlands

Several areas of the park experience wet conditions throughout much of the year. For example, the south-central, west-central, and east-central portions (just east of Williams Pond) often have standing water in them during the winter and spring. Some of the water results from runoff, while much of it results from ground water seepage. Plant communities in these areas, notably different from drier areas of the park, reflect the wet conditions. No attempt has been made to determine wetland classification for any of the park's wet areas or to map and inventory them.[542] No wetlands on the site except Williams Pond appear on the National Wetlands Inventory (NWI) mapping conducted by the U.S. Fish and Wildlife Service. The inventory is based primarily on a review of aerial photographs, soil surveys, and hydrological data. While the NWI is useful as a preliminary planning tool, it should be noted that the inventory is a product of very limited field verification.

Studies developed since the late 1990s have shown that several areas of the national monument deserve attention and protection. Of particular interest are wet prairie areas and Williams Pond (Figure 213). Wet prairie areas located in the southwest and in the south-central areas of the

531. Identified at the state level as S3S4 or vulnerable to apparently secure; and at the federal level as G5 or secure.
532. B. G. Justus and James C. Peterson, "The Fishes of George Washington Carver National Monument, Missouri, 2003," 12.
533. Identified at the state level as S3 or vulnerable; and at the federal level as G3 or vulnerable.
534. Identified at the state level as S3 or vulnerable; and at the federal level as G3 or vulnerable.
535. Identified at the state level as S1 or critically imperiled; and at the federal level as G4G5 or apparently secure to secure.
536. Identified at the state level as S1 or critically imperiled; and at the federal level as G4G5 or apparently secure to secure,
537. Identified at the state level as E or endangered; and at the federal level as T or threatened.
538. Identified at the state level as S1 or critically imperiled; and at the federal level as G4G5 or apparently secure to secure.
539. Identified at the state level as S3 or vulnerable; and at the federal level as G5 or secure.
540. Identified at the state level as S1 or critically imperiled; and at the federal level as G5 or secure.
541. Identified at the state level as S1 or critically imperiled; and at the federal level as G5 or secure.
542. *Resources Management Plan* 1999, 9.

park are particularly notable due to the diversity of plants that are only found in damp areas. Typically, these areas remain either with standing water or with wet soil for most of the year (with a normal drying during the summer drought season). Many species of sedges (*Carex* spp., *Cyperus* spp.) and grasses, as well as forbs are found only in these areas.[543]

Williams Pond, although an artificially created impoundment, is a site that has become the "repository" for some of the most unique plants within the national monument. These include thirteen species found exclusively at the pond: water starwort (*Callichtriche heterophylla*), coontail (*Ceratophyllum demersum*), fall witchgrass (*Digitaria cognata*), several species of spikerush (*Eleocharis acidularis, E. erythropoda* [calva], *E. obtusa*), autumn fimbristylis (*Fimbristylis autumnalis*), rush (*Juncus diffusissimus*), naiad (*Najas guadalupensis*), fog fruit (*Phyla lanceolata*), pondweed (*Potamogeton crispus*), marsh water cress (*Rorippa palustris*), and horned pondweed (*Zanichelli apalustris*).Other typical plants found at the pond are: mud water starwort (*Callichtriche terrestris*), barnyard grass (*Echinochloa crus-galli*), eclipta (*Eclipta prostrata*), spikerush (*Eleocharis verrucosa*), duckweek(*Lemma minor*), chapman bluegrass (*Poa chapmannia*), smartweed (*Polygonum punctatum*), and water cress (*Rorippa nasturtium-aquaticum*).[544]



FIGURE 213. Williams Pond with contemplative loop trail.

4.1.7 Floodplains

Floodplains are fluvial lands adjacent to freshwater streams and rivers that receive floodwaters once the water has over topped the bank of the main channel. This is typically the result of a higher than normal influx of upstream water supplies, with water moving from higher elevations to lower elevations. Floodplains are important resources in the storage and filtering of these floodwaters.

The topography of the national monument landscape consists of gently rolling uplands dissected by stream channels that carry water from natural springs and excess water during rainy periods. The stream valleys have a stepped appearance and bedrock outcrops are infrequent except along deeper streams and rivers. There are floodplains associated with the three stream branches that occur within the park (Figure 214).[545]

There is a great potential for flooding along Carver Branch, with the extensive agricultural use within its 3-mile drainage area and the 100-foot elevation drop between its source and the park entrance. Current laws and policies require that the following conditions be achieved in the park: minimize destruction, loss, or degradation of wetlands and floodplains, and preserve their natural and beneficial values.



FIGURE 214. Floodplains occur along all three stream branches at George Washington Carver National Monument.

543. Jones, 6–11.
544. Ibid. 6–7.
545. Fire Management Plan, 25.

4.2 Cultural Resources

4.2.1 Cultural Landscapes

A cultural landscape is defined in NPS Director's Order 28 as a geographic area, including both cultural and natural resources and the wildlife and domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values.[546]

George Washington Carver National Monument is the birthplace of George Washington Carver, and his place of residence until he was approximately eleven years old. The entire 240 acres of the former Moses Carver farm has been listed in the National Register of Historic Places.[547] The park contains cultural landscape resources such as natural systems and features, the Carver family cemetery and perimeter wall, the walnut tree row planting, and views across the fields and prairies (Figure 215 and Figure 216).

The future of the park as a cultural landscape is a key issue of the CLR/EA. Changes to the cultural landscape that could result from implementing one or more of the alternatives would be of concern to visitors, the general public, the SHPO, interested tribes, local community scholars, and NPS managers.



FIGURE 215. The spatial organization of the landscape of George Washington Carver National Monument is seen in the contrast of open space prairie grassland edged by woodland.



FIGURE 216. The open landscape currently in grassland prairie restoration.

4.2.2 Historic Structures

According to both federal law and NPS Management Policies, all historic structures in which the NPS has a legal interest are to be managed as cultural resources. Regardless of type, level of significance, or current function, every structure is to receive full consideration for its historical values whenever a decision is made that might affect its integrity. Historic structures that are central to the legislated purposes of parks, especially those that are to be interpreted, may be subjects of additional specialized efforts appropriate to their functions and significance. [548]

546. NPS, Director's Order 28
547. United States Department of the Interior: National Park Service. *George Washington Carver National Monument." National Register of Historic Places Inventory – Nomination Form*, October 15, 1966.
548. Ibid. 19.

There are six buildings, and fifteen structures located within the park. The only building to survive from the Carver period is the circa 1881 Moses Carver house (Figure 217). The other five buildings were constructed by the National Park Service in 1960 to accommodate visitor uses and park operations. The visitor center was substantially altered and expanded in 2007 to better accommodate interpretive exhibits and provide improved museum collections storage. One structure—the rebuilt stone wall enclosing the historic Carver family cemetery—was installed as part of the early park development period in support of the commemorative and interpretive programming devised for the park (Figure 218).

Changes to historic buildings or structures at George Washington Carver National Monument that could result from implementing one or more of the alternatives would be of concern to visitors, the general public, the Missouri SHPO, interested tribes and THPOs, and NPS managers.



FIGURE 217. Moses Carver house and site.



FIGURE 218. Stone wall around the Carver family cemetery.

4.2.3 Archeological Resources

Archeological resources are significant due to their identity, age, location, and context in conjunction with their capacity to reveal information through the investigatory research designs, methods, and techniques used by archeologists.

Various archeological inventories have been conducted within the monument from 1953 to 2014 and present ongoing investigations. (Refer to Chapter 2 and Chapter 3 for a complete summary and description of findings) A recent summary of archeological resources at the park is found in a response to an inquiry to the park from the THPO of the Caddo Nation in March 2014. MWAC archeologist Ann Bauermeister provided the following response in an email dated March 27, 2014:

> The entire park has been inventoried for archeological resources, though at different levels of intensity. The parkwide inventory completed by David Benn in 1981 utilized the following survey methods: pedestrian survey of the entire monument, reconnaissance to determine geomorphic aspects of the landscape, and shovel testing of areas covered by vegetation. Benn did not record any sites near those confluences, but additional, more intensive subsurface excavations, or geophysical survey, might yield different results. The park has recently been engaged in undertaking additional archeological inventories in compliance with Section 110. The goal of these inventories is to supplement what was previously documented about the park's archeological resources. The

investigations, more of which are planned for 2014, are utilizing non-invasive geophysical survey methods to look for the presence of subsurface resources that may not have been detected through traditional archeological methods. Limited, targeted excavations to identify potential buried resources could then be undertaken.

Additional investigations at the lithic scatter sites would be very useful in determining site significance and providing additional information about the long history of use and occupation. The sites are visited on a regular basis to assess their condition and document whether they are being subjected to any threats or disturbances. They are all currently listed in "good" condition and are in a good state of preservation.[549]

4.3 Visual Resources

George Washington Carver National Monument exhibits several views designed primarily for visitor enjoyment and understanding of the landscape. Predominant among them are the axial view along the park entrance road toward the visitor center environs, linear views that direct visitors through the historic core to elements of the land that George Washington Carver knew, and long expansive views from the visitor center and Carver Trail across the open restored prairie located south of Carver Branch, and north and west of the relocated Moses Carver house. These views were all established as part of the early development of the park. Specifically, these views include views into the park along the entrance; linear views along the Carver Trail; views from the visitor center and trail of restored prairie; the view across the prairie through the hedgerow of walnut trees; and the view across the fields from the Moses Carver house area (Figure 219 and Figure 220).



FIGURE 219. View to prairie through the walnut row along Carver Trail.



FIGURE 220. View to prairie unit from Moses Carver house interpretive area.

4.4 Visitor Use and Experience

George Washington Carver National Monument, a unit of the National Park System, was established in 1943 to preserve and protect the birth site and commemorate the life of one of the nation's most important scientists. The park is open to visitors daily from 9:00 a.m. to 5:00 p.m. The only days the park is closed are New Year's Day, Thanksgiving Day, and Christmas Day. Guided tours are offered daily at 10:00 a.m. and 2:00 p.m. An array of curriculum-based programs and events are offered for students, and a variety of interpretive programs and special events are offered for visitors. Many of the activities offered at the park are related to George Washington Carver's work and interests.

549. Ann Bauermeister, email correspondence March 27, 2014, to Lana Henry, forwarded to THPO of the Caddo nation.

Teachers are given the opportunity to participate in curriculum based education programs and planned field trips to use the park as a classroom. Visitor services, such as ranger contact, restroom facilities, and drinking fountains, are afforded in the visitor center, while picnic tables are available in the picnic area near the parking lot. The park is also used by visitors for recreational walking/hiking along the Carver Trail and the contemplative loop trail that surrounds Williams Pond (Figure 221).



FIGURE 221. Visitors to the park experience the Carver Trail as part of the interpretive experience and for recreational walking.

Tour groups of 200 visitors (usually students) are frequent. Special days such as Carver Day, National Parks Week, and Prairie Day attract school groups and the general public from as far away as St. Louis, Missouri; Tulsa, Oklahoma; and locations in northwest Arkansas. The annual visitation has increased markedly since the visitor center opened in 1960.

Visitors arrive at the park via Carver Road (Figure 222). The entrance drive leads to the core visitor use area composed of the visitor center, picnic area, and one-mile-long Carver Trail. Parking edges the entrance drive to either side; the entrance drive forms a loop in front of the visitor center that visitors use to return to Carver Road. The main park entrance road is edged to the north by a grove of mature shade trees and a large picnic area is set within the grove (Figure 223). Figure 224 through Figure 228 illustrate features of the visitor experience and interpretation at the park.



FIGURE 222. The entrance drive leads visitors to the core visitor use area.



FIGURE 223. The picnic area for visitors is set in a grove of large deciduous trees.



FIGURE 224. The visitor experience begins at the visitor center and the trailhead for the Carver Trail north of the visitor center.



FIGURE 225. Major node for visitor use is the location of the sculpture of Carver as a boy.



FIGURE 226. Interpretive wayside at the Moses Carver house.



FIGURE 227. Ranger on the porch of the Moses Carver house.



FIGURE 228. Ranger interpretation is part of the visitor experience at George Washington Carver National Monument.

4.5 Park Operations

Park administration has been a component of park operations since early park development. Park administrative offices are currently housed in the visitor center. Park maintenance activities are clustered in a building and grounds complex located south of the visitor center. The maintenance facility was established with the visitor center in 1960 (Figure 229 and Figure 230). Maintenance activities have been a component of the park operations since its early establishment. Also from the time of establishment, utilities have been an essential component of park operations, including water and sewer, telephone, internet and electrical services.



FIGURE 229. Maintenance facility and staff at George Washington Carver National Monument.



FIGURE 230. Parking area for maintenance vehicles.

Presently, the national monument has thirteen full-time park employees; this includes the Superintendent, Administrative Officer, Park Ranger-Management Assistant, Supervisory Park Ranger, Supervisory Facility Operations Specialist, Administrative Support Specialist, Park Ranger (Interpretation 1), Park Ranger (Interpretation 2), Park Guide, Maintenance Worker 1, Maintenance Worker 2, Maintenance Mechanic, and Laborer. There is one permanent part-time employee, the Office Automation Clerk, and there are a number of vacant positions for seasonal/temporary employees. The park staff relies on temporary staff and volunteers to supplement full-time educational and interpretive staff.

The park managed approximately 380 Volunteers In Parks (VIPs) during Fiscal Year 2013, a number substantially higher than in previous years due to the involvement of groups including Gateway School, Wal-Mart Leadership Team, and MSSU EDUC 470 class, as well as others. Without park volunteers, there would be a reduction in the number of programs the park could offer. The VIPs are ambassadors for the park and are successful at recruiting others to volunteer. They support primarily the park's interpretive division by providing daily staffing of the greeter desk (currently eight greeters), providing education programs for school groups (currently seven educators), staffing exhibits and demonstrations during special events (estimated at twenty for the Holiday Open House, thirty for Art in the Park, fifty for Carver Day, and seventy-five to 100 for Prairie Day), and representing the park offsite. Many of the same VIPs work at each event. The VIPs also work with the maintenance division to maintain manicured and landscaped areas. Two to four VIPs conduct the annual breeding bird survey.

Chapter 5: Treatment Alternatives

5.0 Introduction

The alternatives and treatment information that comprises this chapter was prepared to provide George Washington Carver National Monument with an overall vision for the park's cultural landscape that is intended to guide appropriate long-term management and interpretation. The vision is derived from consideration of a range of alternatives presented to the park, stakeholders, and the public that reflect park goals and address identified needs and concerns. Each of the alternatives presented herein was designed to address the park needs in a distinct manner, affording the park and its stakeholders an opportunity to evaluate a wide range of options and test them against factors such as the park's mission as articulated in foundational documents such as the General Management Plan (GMP), interpretive objectives, and sustainability. Each alternative addresses goals and need in a distinct way; through an evaluation process, the park selected a preferred alternative, the implementation of which is addressed in greater detail in later chapters of the Cultural Landscape Report (CLR)/Environmental Assessment (EA).

The information presented in this chapter arises from a synthesis of work undertaken by the project team to prepare this CLR/EA, including stakeholder meetings and workshops, input from NPS regional and park personnel, and comments received from partnering organizations. The treatment plan also reflects the overarching guidance afforded in the park's 1997 General Management Plan (GMP), Long-Range Interpretive Plan, and other foundational documents.

This treatment chapter is organized into the following eight sections:

1. **Park Management Issues, Goals, and Objectives** provides a summary of the management issues collected by the CLR team from various sources, including the GMP, various environmental assessments and planning documents, and park and regional personnel.

2. **Proposed Alternatives and Treatment Guidelines** provides the description of the no action alternative, the goals and objectives common to the action alternatives, treatment recommendations and guidelines common to the action alternatives, and the action alternatives developed through the CLR/EA planning process.

3. **Recommended Landscape Treatment Approach** outlines the four alternatives recognized by the Secretary of the Interior for treating historic landscapes and identifies the most appropriate approach for the park, and communicates an overarching philosophy that guides all treatment recommendations and guidelines for George Washington Carver National Monument developed as part of this CLR/EA.

4. **The Preferred Alternative** identifies the alternative selected for further consideration as the preferred alternative and the rationale for the selection.

5. **The Environmentally Preferred Alternative** identifies the alternative considered to afford the best protection of the natural environment, and that best protects, preserves,

and enhances historic, cultural and natural resources.

6. **Alternatives Considered but Dismissed** describes the treatment alternatives that were considered and dismissed through review, discussion, and analysis.

7. **Mitigation** ensures the protection of natural and cultural resources and the quality of the visitor experience. Measures would be implemented as part of the preferred alternative.

8. **Alternatives and Impact Comparisons** convey in table format the comparison of alternatives in relation to project goals and objectives and the summary of alternatives and potential impacts to park resources.

5.1 Park Management Issues, Goals, and Objectives

The CLR/EA focuses on addressing specific management issues, goals, and objectives identified by the NPS in several venues, including foundational documents, the project statement of work, a project pre-planning workshop, draft report comments, and stakeholder scoping sessions. The management issues, goals, and objectives that have been critical to the development of the treatment alternatives presented as part of this project are listed below.

- Of critical importance is the goal that the CLR develop an approach that suggests how the landscape might enhance, support, and provide for a visitor experience that is consistent with the desired futures identified in foundational park planning documents, such as the GMP and LRIP. The financial reality and relative sustainability of current versus proposed landscape treatments should be considered in discussing the approach.

- The 1997 GMP affords essential guiding principles for how the cultural landscape of George Washington Carver National Monument should be managed in the future, and indicates areas where further exploration of principles are needed to fulfill the park's mission and take full advantage of the site and its resources. The GMP indicates that the park needs to further consider ways of integrating commemoration, interpretation, and the treatment of the cultural landscape. Of particular importance is determining how the historic character of the landscape during George Washington Carver's time at the Carver farm should be used to tell the story of his life. The vision for what the woodlands, prairie, and manicured areas of the developed core should look like and how they should be used to tell George Washington Carver's life story has not been clearly articulated as of yet. The park has evolved to include more than 100 acres of restored native grassland prairie, which is managed as a natural area, woodlands, which are not necessarily managed, and a manicured developed area that has become increasingly ornamental in its character. Other interpretive aspects of the landscape, such as a persimmon grove and apple orchard are no longer extant. The park is interested in looking closely at all of these conditions and taking a proactive, justified approach to landcover management and its connection to interpretation and the visitor experience. Specific questions arising from this area of concern include: Should the entrance continue to present a stately feeling? Are the recently added small plantings appropriate? Should there be interpretive plantings that address some of the agricultural activities and native plants associated with Carver's life and work? Are the exhibit vegetable gardens around Moses Carver house appropriate? When considering future landcover types and management strategies, the park is also concerned that proposals take sustainability into consideration.

- Following up on the questions posed in the GMP, the park recognizes that the landscape is very different now than when Carver lived here. It is important for the CLR to consider whether historic aspects of the farm should be restored. Currently, the park explains these

differences as part of the interpretive program during tours and talks and exhibits. Because the park's enabling legislation indicates that this is a place to commemorate Carver's life, historic landscape restoration, particularly given the lack of specific knowledge of the farm during his lifetime, does not appear to be a necessity, or even a goal. However, the question repeatedly comes up, and the CLR will explore the question and provide guidance on an appropriate approach.

- The NPS has recognized the need to better integrate commemoration, interpretation/education, and the treatment of the cultural landscape. Commemoration is an integral part of the park mission. It is important that the CLR discuss what this means for the landscape, and preserves this value as part of the proposed visitor experience. The park recognizes that interpretation and the treatment of the cultural landscape are integrally linked. The role of the landscape in interpreting and honoring George Washington Carver's achievements should be an important component of the CLR treatment plan. Some of the ideas the park has considered in the past for using the landscape to better interpret Carver's life and achievements include the establishment of demonstration plots, including plots representative of his experiments while at Tuskegee, a greenhouse, restored orchards, and a restored persimmon grove.

- The themes and sub-themes explored in the LRIP should be an important consideration of the treatment plan alternatives presented in the CLR. Each alternative should explore how the park's landscape can fulfill the intent of a specific theme, goal, and visitor experience objective. The overarching principle interpretive theme and four primary interpretive themes to be considered include the following:

    - Principle Interpretive Theme: George Washington Carver's devotion to God, positive character traits, simplistic traits, simplistic lifestyle, inquisitive mind, and humanitarian spirit led him to become a role model for success.

    - Primary Theme A: Carver's Life Platform—He was born into slavery on a Southwestern Missouri farm amidst the tumultuous times at the end of the Civil War. Carver experienced racism, segregation, and other hardships, yet demonstrated an "I Can" attitude throughout his life.

    - Primary Theme B: Carver's Spirituality—George Washington Carver possessed deep Christian beliefs, combining his faith in God with science and crediting Divine revelation for his creative abilities.

    - Primary Theme C: Carver's Passion for Art—George Washington Carver possessed the soul of an artist, expressing himself artistically through his work, gaining personal rejuvenation through artistic pursuits, and encouraging others to incorporate beauty into their lives.

    - Primary Theme D: Carver's Life Work and Achievements—George Washington Carver's life of service led him to become a renowned scientist, educator, humanitarian, and example of interracial cooperation.

- The CLR will also consider how woodlands and open space and savanna areas might be managed to address differences between the contemporary landscape and the former spatial character of the property during the Carver period, which was more open and savanna-like. The CLR will also consider how plants relating to Carver's life and achievements might be featured within the park.

- The prairie restoration project began in the early 1980s and is currently being reconsidered. For the first fifteen years, the restoration program was well managed. After the development of the GMP in 1997, there

was an ongoing lack of consensus or decision-making on how best to manage the landscape. That was a major factor for the status quo management through the years. The park is interested in clarifying the role of the restored prairie, what type of prairie it should be, how much area should be maintained in prairie, and considerations for associated prairie restoration and management practices, including the relationship between prairie management and viewsheds. It is important to clearly articulate the role of the prairie in telling the story of George Washington Carver's life. For example, management through mowing to interpret former farm fields in some areas.

- Invasive plant control is part of the prairie management process. It is now needed in some woodland areas. More support will be needed to ensure the success of this initiative, including funding and personnel, which will be indicated in the CLR.

- The CLR will provide guidance to the park on the management and incorporation of the 30-acre parcel acquired in 2006. This land was once part of the Carver farm, but not part of the original park acquisition. The CLR/EA treatment alternatives should encompass this parcel. An EA has been prepared to address prairie management through prescribed burns. It is hoped that if the new parcel is recommended for conversion to native grassland prairie, that the existing EA can be used to support this action.

- The CLR/EA will also include recommendations for managing the approximately 20-acre developed area of the park, which requires intensive maintenance, and includes the visitor center/maintenance building complex, the picnic area, and the one-mile Carver Trail. For the picnic area, the CLR will consider vegetation management practices and a desired character as well as the consolidation of the picnic areas into one location. In association with the trail, the CLR will consider an overall justified approach to land cover management and its connection to interpretation and the visitor experience. For example, will trees be planted where the trail crosses open areas to enhance the comfort for visitors? The CLR should also evaluate the ornamental plantings at the park entrance, park site furnishings, rose beds, and plantings near the trailhead.

- The care of turf and goals for the appearance of high visitor use areas is a high priority for the park. The CLR will provide guidance and direction regarding treatment of turf and manicured areas within the developed core, and the interface of this area with the less managed prairie units and woodland areas.

- The Carver birthplace cabin exhibit structure appears to be located incorrectly. Archeologists have been conducting detailed investigations to locate the actual site of the Carver birthplace cabin. The CLR will consider how this information could be incorporated into the visitor experience.

- The Carver family cemetery requires special attention (Figure 231). The perimeter wall is in need of repair and the cemetery as a whole requires maintenance and appropriate management, including consideration of returning the opening to the eastern face of the wall where it originally was located. The CLR will also provide guidance on treatment of headstones and turf management within the cemetery wall.



FIGURE 231. Perimeter wall with mounded stones surrounds the Carver family cemetery.

- The late period Carver dwelling is not located on its original site. The CLR will discuss whether there are better methods for reconciling this discrepancy within the landscape.

- The CLR will also consider options for the treatment of Williams Pond and the associated contemplative trail around it (Figure 232). The pond does not contribute to the historic significance of the park, but it provides visual/sensory interest as well as plant and fish habitat. The contemplative loop trail is currently surfaced with mulch. The CLR will consider whether this is appropriate given that it does not meet universal accessibility guidelines.



FIGURE 232. Williams Pond and the surrounding trail.

- Accessibility is of concern to the park, and mentioned in the GMP. An accessibility evaluation of the park and the existing trail system was prepared in 2014. The CLR team will use this evaluation to develop recommendations for enhancing accessibility. Although the park feels that the trail is in fairly good shape, there are certain areas that may need to be adjusted due to steep slopes or loose surfacing material. Some portions of the trail have recently been resurfaced and regraded to improve accessibility.

- Stream bank restoration work was done along Carver Branch to abate erosion that was threatening the spring house and the historian's residence. In the 1970s, 200 feet of rip-rap was imbedded in the outside of a "meander bend" to prohibit channel migration (Figure 233).[550] The park would like the CLR to consider whether restoration of the stream banks currently covered with rip-rap is appropriate.



FIGURE 233. Stream flooding occurs along Carver Branch.

- Within the principal viewshed across the prairie below the visitor center is evidence of the park's leach field (Figure 234). The CLR will consider means for further disguising or limiting the visual impact of this feature as part of the visitor experience.



FIGURE 234. Leach field near the visitor center and fields west of the visitor center with potential for views.

- There is currently a problem accommodating parking associated with visitors during special events, such as Carver Day and Prairie Day. The CLR will consider where to accommodate overflow parking for special events, including

550. Krahe and Catton, 258, 301.

the size of the facilities, access to the facilities, and the potential surface material of the facilities. Presently, the park uses the grassy areas along the entrance road, parking area, and picnic area for this purpose (Figure 235).



FIGURE 235. Overflow parking area south of the entrance road to George Washington Carver National Monument.

- The former park housing area includes three structures that are being considered for disposal. These buildings are currently used for storage. The CLR will comment on the plan to demolish the buildings, and potentially suggest an alternative location for the materials stored in these buildings. The park has estimated the area needed for storage at approximately 1,200 square feet.

- The park has considered establishing an Environmental Trail within the Harkins Branch area (Figure 236 and Figure 237). The CLR will consider whether this is an appropriate addition to the cultural landscape of the park.



FIGURE 236. The south side of the site that is bordered by Elder Road is not accessible to visitors by trail.



FIGURE 237. A secondary access to the park might arise from Elder Road that could connect to new trails in the adjacent fields.

5.2 Alternatives and Treatment Recommendations

The alternatives that follow explore a range of options for the potential expansion and rehabilitation of the George Washington Carver National Monument that meet the park's purpose and objectives while protecting or minimizing impacts on its resources. Several alternatives were considered and dismissed because they did not meet project or park objectives or they had the potential to produce an unacceptable level of adverse impact on the natural and cultural resources and the overall visitor experience. The following draft alternatives developed for the national monument are consistent with applicable NPS laws, policies, and regulations, as summarized in Chapter 1. The alternatives under consideration are listed below:

- Alternative 1 (No Action): Preserve existing conditions and continue current management strategies
- Alternative 2: Rehabilitation of the Landscape, including Limited Restoration to Interpret and Memorialize the Life and Achievements of George Washington Carver
- Alternative 3: Interpreting and Celebrating the Life and Work of George Washington Carver using an Ethnobotanical Approach
- Alternative 4: Honor, Commemorate, and Interpret the Life and Legacy of George Washington Carver by Employing a Combination of Agricultural Heritage and Exhibits of Plantings known to Carver on the Farm and Crucial in His Later Scientific and Research Efforts.

Although the option of continuing current management (Alternative 1: No Action) does not solve the purpose and needs of the project as set forth in Chapter 1, it is examined here because current conditions are used as the baseline against which the action alternatives are analyzed. This is the context for determining the relative magnitude and intensity of impacts (NPS 2001). Three additional alternatives were considered but dismissed because they were determined to be unreasonable, as explained in section 5.7, "Alternatives Considered but Dismissed". Once the action alternatives were developed, reviewed, presented to stakeholders, and revised, the park further evaluated the alternatives, both advantages and disadvantages which led to the identification of the NPS Preferred Alternative.

5.2.1 Alternative 1. The No Action Alternative: Preserve existing conditions and continue current management strategies (No Action).

The No Action alternative focuses on preservation of the existing character of the George Washington Carver National Monument landscape and current interpretive programs. Under this alternative, there would be no changes to the facilities that currently accommodate visitor access and interpretation, or park administration or maintenance. Proposed changes that have already been approved, such as demolition of the park housing structures, would be permitted to proceed. The existing visitor center would continue to serve as the primary means for visitor contact and orientation. The entrance drive and associated parking lot would remain the primary vehicular access route for visitors to experience the park's resources. Visitors would also continue to gain the majority of their knowledge of the life and accomplishments of George Washington Carver through the exhibits located within the visitor center and along the mile-long Carver Trail. The picnic area would continue to support the visitor experience. No provision would be made to accommodate overflow parking beyond the use of current road margins and parking areas.

The current landscape patterns of spatial organization, composed of a developed subzone featuring ornamental plantings, shade trees, and turf, riparian woodlands along the stream corridors, and restored grassland prairie, will also be perpetuated. No further clearing would be undertaken and current mowing and vegetation management regimens would continue. The 30-

acre parcel would remain a fescue field. The Williams Pond would remain in its current configuration. No change would be made to the interpretation of the Carver birthplace cabin site.

Views identified as important interpretive vistas, such as from the visitor center environs across the prairie to the west, would continue to be managed for clear sight lines. Treatment would focus on stabilization and maintenance of the current landscape and preservation of the park's commemorative features as they exist today, including the Carver statue and bust, quote stones, and interpretive markers and monuments.

Major components of the alternative include:

- Maintenance of existing landcover character and patterns
- Maintenance of existing interpretive programs and media
- Maintenance of existing landscape features and systems
- Continued protection of natural and cultural resources
- Continued repair of deteriorated features and systems.

Selection of the No Action alternative would preclude the park from meeting some of the goals identified for consideration as part of the CLR treatment plan in the Purpose and Need statement and the list of management issues, such as expansion of visitor parking facilities to accommodate overflow needs during special events, conversion of fescue fields associated with the former mine site to another landcover type, and clarifications of inaccuracies, such as the current location of the birthplace cabin. No further exploration of ways to utilize the cultural landscape as a tool for interpreting Carver's life and accomplishments would be conducted. Selection of the No Action alternative would also limit the park in its ability to explain the historical context within which George Washington Carver grew up and his efforts to get an education and to rehabilitate the landscape and its associated structures to enhance the memorial nature of the site. Management concerns surrounding Williams Pond, the expansion of the area managed as woodland, consideration of the role of the prairie in site interpretation, and the inaccuracy of the location of the second Carver dwelling would also not be addressed.

Boundary marker
Carver Road
Entrance drive
Brick entrance piers
Former residences (now used for some storage)
Carver Road
Boundary marker
Carver Branch
7B
Picnic area
1
7
Storage shed and yard
Seasonal trail
5
Picnic area
Contemplative Loop Trail
Boy Carver Statue
7A
Visitor parking
Carver Spring
Visitor Center
Maintenance building and yard
Staff parking
Williams Pond
Carver bust
VIEW
4
Elder Road
Birthplace exhibit structure
Demonstration gardens
Carver Family Cemetery
Moses Carver House
Williams Branch
Carver Branch
7
Carver Trail
Replanted walnut fence row
3
Compost pile
Harkins Branch
Dry Branch
Harkins Woods
2
6
Former mine site
8
9
Slash pile
Woodland

This drawing was prepared to illustrate the Cultural Landscape Report/Environmental Assessment for George Washington Carver National Monument in 2015. This drawing is provided to illustrate potential treatment alternatives, and is not intended to serve as a design or construction document.

0' 400' 800'

SCALE 1" = 400'

Feb 04, 2015 - 10:48am G:\PROJECTS\George WC CLR-EA\Planning\AutoCAD\Active\GWCA_Base_20140114.dwg

Environmental Assessment and Cultural Landscape Report

for

George Washington Carver National Monument

Prepared by JMA, a CCRG company

Drawing No. GWCA 397 127385

PMIS No. _____

Legend

- GWCA Boundary
- 1-foot contour
- Stream
- Paved road
- Trail
- Building
- Split-rail (worm) fence
- Core Developed Area 22± acres
- Restored Grassland Prairie 127± acres
- Woodlands 61± acres
- Former Mine Site 30 acres*
- 4 Management Units
- Wet Prairie Areas

*This acreage is included in prairie restoration as Unit 9

Sources:

National Park Service, Cultural Resource GIS office, CLI GIS conversion project, 2013.

Contours created from 7.5 minute digital elevation data, USGS, 1998, Newton County, MO (published Rolla, MO).

Heartland Network Inventory and Monitoring Program, "Vascular Plant Inventory, GWCA," 2004.

Figure 238.

Alternative 1 (No Action)

Preserve Existing Conditions and Continue Current Management Strategies

DRAFT

5.2.2 Goals and Objectives Common to the Action Alternatives

The Action Alternatives within this chapter are intended to address the issues outlined above, while also meeting specific goals identified in foundational park planning documents and good historic landscape preservation practice. The goals and actions that are common to each of the action alternatives include the following:

Goals derived from the GMP

- Integrate interpretation with an approach to managing the cultural landscape.
- Memorialize the life of George Washington Carver as a distinguished African American, scientist, educator, humanitarian, Christian, artist, and musician.
- Preserve the agrarian setting of the Moses Carver farm and birthplace of George Washington Carver.
- Interpret the life, accomplishments, and contributions of George Washington Carver, using a museum, wayside exhibits, and other interpretive strategies.
- Manage cultural and natural resources to memorialize George Washington Carver's life in a dignified and inspirational setting.
- Encourage the public to develop a deep understanding of George Washington Carver's achievements and services to humanity.
- Explain the historical context in which George Washington Carver grew up and his efforts to get an education.
- Evaluate the human/natural/cultural resources and utilize them to a greater extent.
- Rehabilitate the landscape and its associated structures to enhance the memorial nature of the site.

Additional goals derived from the project scope, workshops, and NPS communications include:

- Utilize the LRIP visitor experience objectives and goals to form a justification for proposed introduction of elements of the historic landscape.
- Maintain and preserve George Washington Carver's birthplace, a place known to have been influential in shaping the personality of a man who played an important role in the social and agricultural history of twentieth century America.
- Manage the resources at the national monument to help interpret how the Moses Carver farm and surrounding area influenced George Washington Carver as an adult.
- Preserve the cultural landscape as the principal asset of the national monument, including the individual features and the overall historic character that help convey the story of George Washington Carver's life.
- Enhance the visitor experience by creating opportunities for engagement through interaction with and interpretation of both cultural and natural landscape features. This includes ease of access to historic buildings, structures, and features, as well as natural resources and spaces.
- Ensure treatment alternatives are consistent with the guidance afforded in the Secretary of the Interior's Standards for the Treatment of Historic Properties, including the four appropriate treatment approaches recognized for historic landscapes: preservation, rehabilitation, restoration, and reconstruction.

5.2.3 Treatment Recommendations Common to the Action Alternatives

Based upon the park's need to meet current and projected future interpretive, functional, and management goals, rehabilitation is recommended as the appropriate treatment alternative for the George Washington Carver National Monument

cultural landscape. Because rehabilitation is defined as "the act or process of making possible a compatible use for a property," this approach will allow for protection of the site's historic character and resources while carefully addressing the needs for enhancement of interpretive opportunities and circulation routes, ecological maintenance and restoration, and the improvement of visitor amenities as outlined in the GMP, LRIP, and other foundational park documents.

Under the rehabilitation treatment alternative, stabilization, protection, and preservation of historic and natural resources are actions that must occur in order to allow for the limited accommodation of new uses. As part of the preferred treatment alternative, those resources and systems at George Washington Carver National Monument that are to be the focus of stabilization, protection, and preservation are noted, as are the aspects or areas of the cultural landscape that are particularly sensitive to change and disturbance. Sensitive habitats and biotic resources, as well as sites of known and potential archeological resources, for example, should be treated with great care. In general, the CLR recommends preservation of archeological resources unless a compelling research question or informational need justifies disturbance or excavation or unless mitigation to accommodate unavoidable change is necessary.

In considering the other treatment alternatives recognized by the Secretary of the Interior for the George Washington Carver National Monument cultural landscape, the CLR found them inappropriate for the following reasons. Preservation is overly restrictive because it does not allow for the enhanced interpretation and site access recommended in the GMP and LRIP. Restoration and reconstruction are also inappropriate because they assume, as a prerequisite, that sufficient documentation exists to accurately portray a lost historic condition. At this time, it does not appear that documentary sources are detailed enough to support restoration or reconstruction of the George Washington Carver National Monument. Also, a mission of the park is to commemorate Dr. Carver, suggesting that the landscape convey information and qualities other than a strict historical presentation.

Natural Systems and Features

1) Retain and maintain the natural features and systems that contribute to the National Register significance of the park:
    - Carver Branch
    - Carver Spring
    - Dry Branch
    - Harkins Branch
    - Williams Branch
    - Drainage swale in the field south of the visitor center
    - Native successional woodlands
2) Preserve, manage, and interpret existing natural systems including Carver Spring and the three streams—Carver, Harkins, and Williams branches.
3) Retain, maintain, manage and interpret Harkin Woods as a natural and visual resource that contains plants of natural resource value not found elsewhere within the park.
4) Maintain and manage 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.
5) Preserve the existing landforms and natural drainage patterns to the greatest extent possible.
6) Consider changing management of Unit 2, currently grassland prairie, to woodland. Based on analysis conducted in 2010 by MoRAP this is the only prairie unit that may be better suited to woodland than grassland. Unit 2 should potentially be considered for

conversion to white oak/burr oak-pecan, floodplain forest.

7) Convert the 30-acre parcel acquired by the park in 2006 to prairie to incorporate it into the overall approach to landcover management beyond the central interpretive area associated with the Carver Trail and the visitor center.

Responses to Natural Resources

1) Retain and maintain the responses to natural resources that contribute to the National Register significance of the park including:

   - Siting of the Moses Carver farm in close proximity to fresh water sources
   - Siting of the Carver Trail to take advantage of natural features, and inclusion of the Shartel-era Williams Pond
   - Use of bridges in association with park trail stream crossings
   - Removal of rip-rap imbedded in 1970 to prevent channel migration and reconstruction and re-vegetation the stream bank.
   - Siting of the picnic area in the deciduous shade tree grove
   - Siting of the visitor center on a ridge overlooking the fields associated with the Moses Carver farm
   - Use of swales and culverts along the entrance road for drainage

Patterns of Spatial Organization

1) Retain and maintain the patterns of spatial organization that contribute to the National Register significance of the park including:

   - Formal entrance road corridor
   - Visitor center environs
   - Shaded picnic grove
   - Linear and enclosed Carver Trail corridor
   - Linear walnut hedgerow separating open space
   - Moses Carver house area enclosed by woodland on the approach and the open space beyond extending visually to prairie fields and woodland in the distance.
   - Carver family cemetery, edged by a perimeter wall
   - Open fields that generally follow former field patterns used for agriculture during Carver ownership with edges defined by tree rows or woodlands.
   - Linear wooded and deeply shaded stream corridors

Land Uses and Activities

1) Retain and maintain the land uses that contribute to the National Register significance of the park including:

   - Cemetery
   - Commemoration
   - Commerce
   - Maintenance
   - Interpretive/museum/educational
   - Park administration
   - Recreational
   - Utility
   - Visitor services

2) Provide for visitor services to enhance the experience available at the national monument.

3) Retain and maintain utility land uses that are an essential component of park operations,

including water and sewer, gas, telephone, refuse collection, and electrical services.

4) Retain and maintain conservation land uses in order to protect natural resources of high quality and value, including native plant communities and water resources.

5) Convert the park housing area to overflow parking after planned demolition of structures has occurred. Retain the existing separate entrance to the area for access.

6) Consolidate the two picnic areas into one, in the location of the current picnic area in the grove of large deciduous trees, north of the main entrance road to the national monument.

Views and Viewsheds

1) Retain and maintain the views and viewsheds that contribute to the National Register significance of the park including:

   - Views into the park along the entrance road
   - Linear views along the Carver Trail
   - Views across the prairie through the hedgerow of walnut trees
   - Views across fields from the Moses Carver house area
   - Views of surrounding farmsteads

Topographic Modifications

1) Retain and maintain the topographic modifications that contribute to the National Register significance of the park including:

   - Grading to accommodate the entrance road and visitor parking area (northern)
   - Grading to accommodate the visitor center
   - Grading to construct the original Carver Trail
   - Excavation and grading in construction of the Williams Pond dam
   - Grading to accommodate the park housing complex

Circulation

1) Retain and maintain the circulation features that contribute to the National Register significance of the park:

   - Park entrance road and north parking area
   - Maintenance area access road and maintenance yard area parking
   - Access road leading southwest from the maintenance area through and around fields
   - Internal access roads, including North-South Road (west boundary)
   - Carver Trail
   - Concrete walks associated with the housing complex and visitor center

2) Enhance universal accessibility associated with the trail and other aspects of the park, ensuring that the entire trail meets the ABAAS (Architectural Barriers Act Accessibilities Standards of 1968) and the 2004 ADA-ABA Accessibility Guidelines by addressing any deficiencies identified in *George Washington Carver National Monument: Accessibility Debriefing Report and Final Report* (NPS 2014).

3) Remove the wood chip mulch surfacing on the Contemplative Loop Trail and replace with compacted crushed aggregate surface to create a firm and stable surface.

Cultural Vegetation

1) Retain and maintain 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 housing complex
- Picnic grove shade trees

2) Retain and maintain native tree plantings installed by the NPS in the 1960s and 1970s within the developed core area and in the vicinity of the visitor center.

3) Maintain and manage turf land cover in the 20 plus or minus acres comprising the Core Developed Area. Follow the guidance afforded in the National Park Service *Midwest Region Pilot Turf Stewardship Project* for the George Washington Carver National Historic Site. Turf in this area should be highly manicured and meticulously maintained, in contrast to the land cover character of the prairie grasses and the woodlands. The turf stewardship project provides supporting information for the development and implementation of a natural turf management program. The soil background, products, and cultural practices that are discussed all contribute to the underlying objective of creating a healthy turf system.

4) Maintain and manage the turf associated with the Moses Carver house yard, the Carver family cemetery, and the former park housing area. Management of the turf in these areas should also follow guidelines from the turf management project. Turf that is less meticulously maintained is envisioned for these areas. Once the former housing structures are removed, that area will be converted to overflow parking edged by prairie.

Buildings and Structures

1) Retain and maintain the buildings and structures that contribute to the National Register significance of the park:

- Moses Carver house
- Maintenance building
- Superintendent's residence, unless plans for demolition are realized
- Historian's residence, unless plans for demolition are realized
- Four-unit seasonal housing, unless plans for demolition are realized
- Stacked stone wall enclosing the Carver family cemetery
- Monument site boundary markers (2) along Carver Road
- Williams springhouse foundation

2) Stabilize and maintain, and consider restoring, the Carver family cemetery wall to reflect intended squared off stone stacking methods and the original eastern opening for access.

3) Repair features assessed in fair to poor condition:

- Elements of the Moses Carver house including porch floor transparent finish, repairs and sealing of gaps at wood siding and floor boards due to settlement, and repairs to worn and deteriorated entrance stairs.
- Low brick walls surrounding the maintenance yard.
- Superintendent's residence, unless plans for demolition are realized.
- Historian's residence, unless plans for demolition are realized.
- Four-unit seasonal housing, unless plans for demolition are realized.

4) Provide universal accessibility to all buildings and structures as well as features associated with the primary interpretive experience, following the guidelines set forth in the *George Washington Carver National Monument:*

Accessibility Debriefing Report and Final Report (NPS 2014).

5) Consider construction of a storage facility (approximately 1,200 square feet) in order to accommodate needs as outlined by the park. It is recommended that the facility form the western edge of the existing maintenance yard. The scale, form, materials, and massing of this facility should be compatible with the adjacent maintenance building (Building No. 22). Characteristic design elements include a simple one-story brick masonry rectangular form capped with a shingled gable roof with deep roof eaves.

Small-scale Features

1) Retain and maintain the small-scale features that contribute to the National Register significance of the park:

   - Boy Carver statue.
   - Bust of George Washington Carver.
   - Lighting at former park housing area. Lighting here appears to survive from the park establishment period.
   - Dedication plaque.

2) Retain, maintain, and interpret the bust of George Washington Carver.

3) Continue to mark the graves within the Carver family cemetery. The grave markers are replicas and contemporary features. When in poor condition they can be replaced.

Archeological resources

1) Avoid land use activities, permanent or temporary, which might threaten or impair known or potential archeological resources.

2) Initiate further archeological investigations in order to accurately locate features of the Moses Carver farm that might include the birthplace cabin site, the original site of the Carver house that was moved by the Shartels, the sites of the Williams and Gilmore cabins, the orchard, fields and fencelines, kitchen garden, roads, and outbuildings. Use this information to inform interpretation as well as resource management.

5.2.4 Action Alternatives Developed through the CLR/EA Planning Process

This section outlines the three cultural landscape treatment action alternatives explored by the CLR/EA and presented to the park and stakeholders for review and consideration.

Alternative 2. Rehabilitation of the Landscape, including Limited Restoration, to Interpret and Memorialize the Life and Achievements of George Washington Carver

Interpretation is considered a means of memorialization. Interpretation of George Washington Carver's life on the Moses Carver farm, the experience of his transition from slavery to freedom, and the influence of these experiences on his later notable work and career as a scientist are already a focus of the monument. As part of an overall strategy for managing the cultural landscape of the park, this alternative recommends developing additional connections between interpretive programming and what is known about the landscape that comprised the Moses Carver farm during George Washington Carver's time on the property.

This rehabilitation alternative suggests enhancing the ability of the park to tell the story of George Washington Carver's experience by re-establishing and interpreting missing nineteenth century features and lifeways. Rehabilitation of the landscape is intended to establish new areas within the park that afford additional opportunities for the public to reflect on Carver's life. Some of the new areas will focus on selective restoration of features for which documentation of the nineteenth century farmstead exists. Through these, visitors will learn first-hand about Carver's experience, and the influence of the natural environment on his later life and work. Limited restoration would also allow for more in-depth

exploration of how the postbellum landscape known to Carver likely reflected the evolving role of former slaves in a new economy.

The areas where limited restoration would occur would closely edge the route of park trails or be visible from the Carver Trail at interpreted vista points. The existing Carver Trail would remain in its current location and configuration. Features present during the third quarter of the nineteenth century would be revealed, as known, along the trail. They are anticipated to include the persimmon grove, walnut tree fencerows, savanna-like woodlands, the fruit orchard, the farmstead area, the rural agricultural setting, hayfields, and historic circulation features. A limited extension of the trail would be developed to provide connections with historic features not located along the existing trail, including sites where views would be afforded to more distant features. Wayside exhibits would convey information about historic farmstead features at specific locations and viewpoints, providing a clear connection between Carver's life and achievements and the historic landscape of the farm.

Archeological investigations would be employed to determine additional information about the farm in support of restoration efforts. Where insufficient information exists to guide accurate restoration of historic farmstead features, information would be conveyed and interpreted through means such as artist renderings, historic graphics, and marking sites on the ground using foundational outlines, mow patterns, and plantings. It is anticipated that the locations of such features as the Moses Carver dwellings, outbuildings, fencelines, roads, kitchen garden, fields, hedgerows, and pastures would be conveyed in this way.

The majority of the existing developed core of the park would remain similar to existing conditions today. The entrance drive, parking area, picnic area, visitor center, and maintenance area would continue to function and have a similar appearance to that present today. Current park concerns regarding screening of work areas, directing visitors to a single picnic area, and addressing overflow parking needs would be addressed to maximize visitor enjoyment and to limit views of incompatible activities from the core interpretive experience. The existing housing area would be converted to an overflow parking area, while the 30-acre parcel acquired in 2006 that was formerly used for zinc mining would be converted to prairie to incorporate it into the overall approach to landcover management beyond the central interpretive core. The ongoing efforts conducted by the park to manage natural resources for diversity and conservation, as evidenced through views to prairie communities from the trail, would serve as a foundation for interpreting Carver's work as a scientist.

The landscape beyond the developed core and interpreted area would feature either mown hay fields within the viewshed of interpreted vista points to convey the agricultural character of the landscape during the Carver period, or continued management of the restored native grassland prairie beyond designated viewsheds in order to promote conservation and the diminishment of mowing responsibilities. In areas where historic farming practices are proposed to be interpreted, the goal would be to present an agricultural character, while preserving the native grassland prairie plant composition. The Carver Branch woodland, through which the trail passes, would be managed to promote a savanna-like composition more consistent with that present during the nineteenth century. Use of the bottomlands for crop cultivation during the nineteenth century would be interpreted within this milieu. The beauty and serenity of the bottomland woodland community would afford opportunities to interpret Carver's spirituality.

The specific actions resulting from the implementation of this alternative are anticipated to include:

- Retention of the existing visitor services area core, including the picnic grove, visitor center, and parking area. This is a highly manicured area to be meticulously maintained.

- Establishment of overflow parking on the current site of the housing buildings proposed for removal.

- Interpretation of the accurate location of the birthplace cabin based on further research and investigation using foundation outlines and mow patterns; the approach of using foundation outlines and mowing patterns would need to be determined based on the distribution of archeological resources at the original farm area; the best approach for interpreting the birthplace cabin in its original location would need to be determined with direct input from an NPS archeologist.

- Interpretation of the accurate location of Moses Carver homestead based on further research and investigation using foundation outlines and mow patterns; the best approach for interpreting this building in its original location would need to be determined with direct input from an NPS archeologist.

- Interpretation of other former Moses Carver farm features, such as outbuildings, pastures, fields, and cultivated areas, fencelines, roads, hedgerows, the persimmon grove, and the nut and fruit orchard to depict the character of the Moses Carver farm and agricultural activities; the best approach for interpreting those buildings and features in their original locations would need to be determined with direct input from an NPS archeologist.

- Clearing of woodlands not present during the Carver period.

- Establishment of native warm-season grass fields and prairie communities following the recommended clearing of wooded areas. Development of appropriate seed mixes in concert with the Heartland Network Inventorying and Monitoring program personnel. Establishment of native warm-season grass fields and prairie should be preceded by clearing of woody growth, grubbing the soil, grading to prevent channelization, scarification of the soil, seeding and/or the planting of plugs or sod produced at the park, and covering with a light erosion control material, and watering.

- Management of bottomland woodlands to depict the historic savanna-like character, including thinning of trees and undergrowth.

- Expansion of the Carver Trail to provide access to viewsheds of the rural agricultural setting and fields managed to convey historic agricultural character.

- Development of interpreted vista overlooks along the existing and proposed expanded trail to interpret historic field patterns and farm features.

Manage Carver Branch woodlands to promote a pre-settlement savanna-like composition, consistent with that known to the Carvers when they settled the property

Manage and maintain viewshed from visitor center to prairie

Consolidate picnic areas to this location

Main entrance

New entrance road for overflow parking

Retain separate exit for overflow parking

Overflow parking (former housing quarters)

Carver Road

Carver Road

Interpretation of former farm features; birth place cabin; Moses Carver homestead and farm outbuildings

Expanded crushed aggregate trail loop around primary interpretive area

Expanded mown trail loop, with open views to rural setting of managed hayfields

Cleared woodland to expand views from trail; establish native warm-season grassfields and prairie communities

Manage and maintain Williams Pond

Replace mulch surfacing of Contemplative Loop Trail with crushed aggregate

Expanded mown trail loop, with open views to rural setting of managed hayfields

Manage Harkins Woods for perpetuation of healthy native plant communities and unique plants and natural resource conservation

Retain seasonal trail and resurface for accessibility

Proposed location of storage facility

Apple orchard restoration for interpretation of former farm features; also serves to screen staff parking area

Elder Road

Expanded mown trail loops, with open views to rural setting of managed hayfields

Mown-managed hayfields preserve agricultural character of landscape during Carver period

Interpretation expanded to include reclamation of former mine site

Expanded crushed aggregate trail and restoration of persimmon grove

Consider management of this prairie unit as woodland, with white oak/burr oak-pecan floodplain forest

Cleared woodland for partial restoration of historic character of land cover during Carver period; establish native warm-season grassfields and prairie communities

Manage woodlands for natural resource conservation

Carver Branch

Williams Branch

Harkins Branch

Dry Branch

7

7B

7A

1

5

4

3

6

8

2

9

VIEW

This drawing was prepared to illustrate the Cultural Landscape Report/Environmental Assessment for George Washington Carver National Monument in 2015. This drawing is provided to illustrate potential treatment alternatives, and is not intended to serve as a design or construction document.

0' 400' 800'

SCALE 1" = 400'

Feb 04, 2015 - 10:28am G:\PROJECTS\George WG CLR-EA\Planning\AutoCAD\Active\GWCA_Base_20140114.dwg

Environmental Assessment and Cultural Landscape Report

for

George Washington Carver National Monument

Prepared by JMA, a CCRG company

Drawing No. GWCA 397 127385

PMIS No. _____

Legend

- GWCA Boundary
- 1-foot contour
- Stream
- Paved road
- Trail
- Building
- Split-rail (worm) fence
- Core Developed Area 22± acres
- Restored Grassland Prairie/ Managed Hayfields 127± acres
- Managed Prairie Viewsheds 40± acres (of 127± acres)
- Managed Woodlands 49± acres
- Cleared Woodlands 12± acres
- Expanded Trails 4680 linear feet
- 4 Management Units
- Wet Prairie Areas

Sources:

National Park Service, Cultural Resource GIS office, CLI GIS conversion project, 2013.

Contours created from 7.5 minute digital elevation data, USGS, 1998, Newton County, MO (published Rolla, MO).

Heartland Network Inventory and Monitoring Program, "Vascular Plant Inventory, GWCA," 2004.

Figure 239.

Alternative 2

Rehabilitation of the Landscape, Including Limited Restoration, for Interpretation to Memorialize the Life and Achievements of George Washington Carver

DRAFT

Alternative 3. Interpreting and Celebrating the Life and Work of George Washington Carver using an Ethnobotanical Approach[551]

George Washington Carver developed a love of nature and plants during his youth on the Moses Carver farm. Throughout his career as a scientist, Carver promoted the value of and new uses for plants, including applications as food, medicines, dyes, and industrial products. During his tenure at Tuskegee Institute, Carver described the influence of his childhood, particularly his exploration of the fields and woods on the Moses Carver farm, on his interest in and knowledge of ethnobotany. Carver became known as the "plant doctor" due to his knowledge regarding medicinal uses of plants as a young boy. Carver expanded on his early knowledge in his scientific work later. This action alternative suggests connecting visitors with the range of plants available to Carver on the property during his youth that he later recommended for a variety of useful purposes, and expanding interpretation to discuss how these plants, and many others, were used in his later scientific work during his years at Tuskegee Institute.

The focus of this rehabilitation alternative would be the interpretation of Carver's work and career through plants known to have been the focus of his experiments and scientific exploration. Plants would be featured along park trails to enhance interpretation of Carver's achievements. They would include native species known to Carver during his youth on the farm that he used for food, art materials, and medicinal purposes, and native species featured in his experiments. The design of the interpretive journey would include existing stands of native plants, and other species planted by the park for interpretive purposes. The existing trail would form the basis for the new interpretive layer, but additional extensions would be added to provide access to areas of the property of interest, such as Harkins Woods. Demonstration plots would be developed as part of new interpretive elements along the trail. Existing plant communities would be managed for natural resource values and in accordance with scientific principles of conservation and species diversity, including the restored native grassland prairie. This use is consistent with Carver's conservation efforts and the belief that promoting diversity is critical to allow for future important ethnobotanical discoveries.

Like Alternative 2, the majority of the existing developed core of the park would remain similar to that present today. The entrance drive, parking area, picnic area, visitor center, and maintenance area would continue to function and have a similar appearance to that present today, although the theme of ethnobotanical interpretation would begin at the park entrance. All ornamental plantings present within the park would be considered for potential replacement with species known to have played a key role in Carver's work. Current park concerns regarding screening of work areas, directing visitors to a single picnic area, and overflow parking needs would be addressed by introducing plants known to have served Carver in his work.

The existing housing area would be converted to an overflow parking area, while the 30-acre parcel acquired in 2006 that was formerly used for zinc mining would be converted to native grassland prairie.

The specific actions resulting from the implementation of this alternative are anticipated to include:

- Retention of the existing visitor services area core, including the picnic grove, visitor center, and parking areas;

551. Ethnobotany is the study of people and plants, specifically how people interact with plants. This study may be approached from a variety of angles including ecological, pharmacological, anthropological, archaeological, and historical.

- Establishment of a wide variety of native plant species producing useful and edible fruits, nuts, dyes, and fibers known to have been a focus of Carver's work;

- Establishment of species such as a persimmon grove, known to Carver and used in his later scientific experiments

- Clearing of woodlands for views from the contemplative trail and establishing native warm season grass fields and prairie communities;

- Interpretation of Carver's contribution to improvements to postbellum Southern agricultural practices, and to natural sciences, and the application of scientific knowledge to improve the human condition through a lens of the various uses of plants to meet human needs;

- Interpretation of Carver's conservation ethic and recommendations to Southern farmers and others featuring the restored grassland prairie;

- Interpretation of the ways plant species served local residents in a variety of capacities during the nineteenth century; and the ways that Carver explored other uses of plants as a scientist during the first part of the twentieth century;

- Expansion of the trail system into additional areas of the property to provide access to ethnobotanical plantings;

- Continued natural resource management of restored grassland prairie and Harkins Woods, and interpretation of the approach.

Theme of ethno-botanical plantings would begin at entrance

New entrance road for overflow parking

Woodland clearing close to Carver Branch for enhanced interpretation of ethno-botanical plants

Consolidate picnic areas to this location

Maintain separate exit for overflow parking

Overflow parking

Restoration of grassland prairie and continued natural resource management

Carver Road

Carver Road

Continue natural resource management of grassland prairie

Carver Branch

7B

7

1

Retain seasonal trail and resurface for accessibility

Elder Road

Woodland clearing close to Carver Branch for enhanced interpretation of ethno-botanical plants

7A

Theme of ethno-botanical plantings; when opportunity exists, consider replacement for planting beds so any non-natives do not become invasive

5

Manage and maintain Williams Pond

Proposed location of storage facility

Node for ethno-botanical plantings (such as apple orchard) to also screen views to staff parking

Woodland clearing for plantings and more views from the Contemplative Trail; establish native warm-season grassfields and prairie communities

Crushed aggregated segment of trail through major interpretive area

Replace mulch surface of Contemplative Trail with crushed aggregate

VIEW

Mown trail expansion in the landscape follows existing mown corridors where possible

Manage and maintain viewshed from visitor center to prairie

4

Expand demonstration gardens

7

Williams Branch

Carver Branch

Restoration of grassland prairie and continued natural resource management

Expanded crushed aggregate trail and boardwalk or bridges across Harkins Branch to provide access to interpretive nodes associated with ethno-botanical plantings

Woodland clearing for ethno-botanical plantings/persimmon grove

3

8

Harkins Branch

Manage Harkins Woods to retain healthy native plant communities, to remove invasive species, and for enhanced interpretation from the expanded trail; continue natural resource management

2

6

9

Expanded crushed aggregate trail segment to provide access to interpretive nodes associated with ethno-botanical plantings

Dry Branch

Mown trail expansion for access to the landscape, follows existing mown corridors where possible

Manage woodlands to remove invasive species and to sustain ethno-botanical plantings for interpretation

Node for ethno-botanical plantings including shade trees for trail

Manage woodlands to remove invasive species and enhance interpretation from expanded trail

Consider management of this prairie unit as woodland with white oak/burr oak-pecan floodplain forest

This drawing was prepared to illustrate the Cultural Landscape Report/Environmental Assessment for George Washington Carver National Monument in 2015. This drawing is provided to illustrate potential treatment alternatives, and is not intended to serve as a design or construction document.

0' 400' 800'

SCALE 1" = 400'

DRAFT

Feb 04, 2015 - 10:49am G:\PROJECTS\George WC CLR-EA\Planning\AutoCAD\Active\GWCA_Base_20140114.dwg

Environmental Assessment and Cultural Landscape Report

for

George Washington Carver National Monument

Prepared by JMA, a CCRG company

Drawing No. GWCA 397 127385

PMIS No. _____

Legend

- GWCA Boundary
- 1-foot contour
- Stream
- Paved road
- Trail
- Building
- Split-rail (worm) fence
- Core Developed Area 22± acres
- Restored Grassland Prairie 127± acres
- Managed Woodlands 51± acres
- Cleared Woodlands 10± acres
- Ethno-Botanical Plantings
- Expanded Trails 5400± linear feet
- 4 Management Units
- Wet Prairie Areas

Sources:

National Park Service, Cultural Resource GIS office, CLI GIS conversion project, 2013.

Contours created from 7.5 minute digital elevation data, USGS, 1998, Newton County, MO (published Rolla, MO).

Heartland Network Inventory and Monitoring Program, "Vascular Plant Inventory, GWCA," 2004.

Figure 240.

Alternative 3

Interpretation and Celebration of the Life and Work of George Washington Carver using an Ethno-Botanical Approach

Alternative 4. Honor, Commemorate, and Interpret the Life and Legacy of George Washington Carver by Employing a Combination of Agricultural Heritage and Exhibits of Plants Known to Carver (*Preferred Alternative*)

Based on the comments provided as part of the stakeholder scoping effort, the CLR team prepared a fourth alternative that blended the ethnobotanical[552] concept, with site-specific enhancement of the interpretive programming involving the nineteenth century Moses Carver farm known to George Washington Carver, and enhanced environmental education opportunities involving trail expansion and justification for ongoing prairie restoration activities to honor Dr. Carver's conservation work. This alternative features exhibits of plants known to Carver during his early years on the farm and used in traditional ways, as well as plants that were important to Carver's research and scientific efforts within the realm of economic botany.[553]

George Washington Carver National Monument is a historic designed landscape of commemoration and interpretation that also retains remnant elements of the historic vernacular landscape known to Carver during his formative years. The establishment of the Monument in the 1940s, 1950s, and 1960s to honor George Washington Carver was laid lightly on the land to preserve and protect the natural features of the environment and the agrarian character of the nineteenth century Moses Carver farm. Park features were also designed to convey a contemplative and aesthetically attractive character suitable to the task of honoring the distinguished scientist and humanitarian. Park planning efforts conducted since the 1960s have continually grappled with appropriate measures for enhancing interpretation of both the landscape that inspired Carver while living on the farm between 1865 and 1877, as well as his achievements in the arts and sciences.

Recognizing these needs, this treatment alternative focuses on the interpretation of several features known to have been present on the Moses Carver farm during George Washington Carver's boyhood. Since they are no longer extant, interpretation will help to convey the scale, arrangement, orientation, and elements of the historic farmstead. Features include field and pasture patterns of agricultural production, walnut hedgerows, the fruit and nut orchard, and a persimmon grove. The farm area would be addressed in part through physical means such as foundation outlines and mow patterns, as well as wayside exhibits and artistic renderings.

Coupled with interpretation of these historic farmstead features, would be interpretation of the plants that Dr. Carver incorporated into his work throughout his life. Elements for interpretation will include plants for food, industrial production, medicines, dyes, fibers, and other uses. Waysides or exhibits would be located within the developed core, particularly along principal visitor circulation routes. These plants familiar to Carver will trace the experience of Carver's youth through his scientific career, helping to knit together his early years when he developed a love of nature, plants, and science, with his life's work, including his promotion of soil and land conservation to Southern black farmers. Any present and future areas of restored prairie within the park managed to promote species diversity, and soil and water conservation, will be interpreted as a contemporary expression of Carver's early twentieth century activities. Priorities for proposed interpretation would be established by the park and guide the number of new exhibit features or wayside signs. Proposed interpretation can also be integrated into existing exhibits, signage, and brochures, retaining and supporting the established goals and objectives set forth in the park's *Long Range Interpretive Plan*. This combination would ensure that interpretive exhibits or signs do not visually intrude on the cultural landscape.

552. Ethnobotany is the study of people and plants, specifically, how people interact with plants.

553. Economic botany is the commercial exploitation of plants by people.

Like Alternatives 2 and 3, the majority of the existing developed core of the park would remain similar to that present today. The entrance drive, parking area, picnic area, visitor center, and maintenance area would continue to function and have a similar appearance to that present today. Plants that were familiar to Carver and played a key role in his work, would be established at the park entrance. Small discreet plant identification signs would be considered for these plants at the entrance. All ornamental plantings present within the park would be considered for potential replacement with these plant species. Current park concerns regarding screening of work areas, directing visitors to a single picnic area, and addressing overflow parking needs would be addressed through the introduction of these plant species or to interpret nineteenth century farming practices on the Carver farm.

The existing housing area would be converted to an overflow parking area with a new road connection from the entrance road to the parking area provided. Accommodation of the park's storage needs would occur through either adaptive reuse of one of the three housing buildings slated for demolition, or construction of a new 1,200 sf facility integrated into the maintenance yard and perimeter wall. The 30-acre parcel acquired in 2006 that was formerly used for zinc mining would be converted to prairie to incorporate it into the overall approach to landcover management beyond the developed and interpretive core.

The specific actions resulting from the implementation of this alternative are anticipated to include:

- Retention of the existing visitor services area core, including the picnic grove, visitor center, and parking areas.

- Interpretation of former farm features, birthplace cabin, Moses Carver homestead and farm outbuildings; the best approach for interpreting these buildings and features in their original locations would need to be determined with direct input from an NPS archeologist.

- Establishment of vistas along the Carver Trail to interpret the agrarian setting by mowing of some prairie units and areas.

- Management and maintenance of field spatial organization with hayfields, to reflect the agrarian setting of Carver's youth; consider the haying timing so existing plants in the strip along the trail can be seen to their best advantage.

- Management of riparian woodlands to remove invasive species and promote a pre-settlement savanna-like composition.

- Interpretation of the ways plant species served local residents in a variety of capacities during the nineteenth century; and the ways that Carver explored other uses of plants as a scientist during the first part of the twentieth century; this could also be interpreted as a museum exhibit.

- Establishment of a heritage fruit and nut orchard to interpret the Carver farm.

- Establishment of a persimmon grove to interpret one of the key features described by Carver from his childhood.

- Establishment of plants along trails and roads and interpretation of a wide variety of native species known to have been a focus of Carver's work including edible fruits, nuts, dyes, and fibers.

- Expansion of the trail system into additional areas of the property to provide access to interpretive nodes associated with plants familiar to Carver, and in a way that does not negatively impact the park's natural resources.

- Establishment of views by clearing woodlands north of Williams Pond and the contemplative trail and establishing native warm season grass fields and prairie communities.

- Development of a revised Fire Management Plan (FMP). The current FMP does not

address the abandoned mine or the woodlands.

- Development of appropriate seed mixes for establishing native warm season grass fields and prairie communities in concert with the Heartland Network Inventorying and Monitoring program personnel.

- Enhancement of natural resource management of restored grassland prairie and Harkins Woods for health, diversity, and soil and water conservation.

Implementation of this alternative, as well as Alternative 3, will involve development of a list of key species drawn from our knowledge of the experiences and work of George Washington Carver. The list of possible choices included below is derived from review of Peter Burchard Duncan's *George Washington Carver: For His Time and Ours. Special History Study: Natural History Related to George Washington Carver National Monument, Diamond, Missouri.* The recommended plants and related exhibits are organized by category and location:

- Moses Carver farm exhibit orchard: apple and peach trees, pecan, walnut, hazelnut trees. (Note that any interpretation of the exhibit orchard or other farm features must contain a disclaimer that they are not actual representations of anything that existed on the historic Moses Carver farm.)

- Moses Carver farm demonstration garden plots: watermelon, pumpkin, corn, Irish potatoes, sugar cane, flax, strawberries, herbs. (Note that any interpretation of the demonstration garden plots must contain a disclaimer that they are actual representations of anything that existed on the historic Moses Carver farm.)

- Forage plants mainly for humans along Carver Trail and extended the trail through mown fields: big bluestem, sedges, bottomland grasses, oak, hickory, walnut trees.

- Native wild foods and medicinal remedy plants along Carver trail and extended trail to and through Harkin's Woods: persimmon, wild onion, pine (needles), sumac (berries), pepper grass, wild lettuce, rabbit tobacco, liverwort, wild primrose, chufa nut grass, bur oak (nuts) evening primrose, sassafras, yarrow, Jerusalem artichoke, strawberries, fox grapes, service berries, dew berries, blackberries, huckleberries, fox grape, pawpaws, raspberries, spice bush, sassafras, wild ginger, fringed gentian, hickory, chinquapin. (Weed species, may want to interpret but not plant: sumac, amaranth, ragweed, pokeweed.)

- Within Harkins Woods, interpret Carver's ability to identify ferns, mosses, fungi, and his recognition of the importance of woods in protecting soil and water quality.

- Shade trees for walk from cemetery to visitor center noted in Carver's experiments: pecans, flowering trees for bees, catalpa, horse chestnut, persimmon; interpretation is not proposed for these plantings.

- Tuskegee demonstration plots: (food, fiber, dyes, chemurgy, green manure, natural pesticides, etc.) sweet potato, peanut, okra, cotton, pumpkin, persimmon, cowpeas, soy beans, peas, beans, clover, yucca, cotton, figs, grapes, sugar beets, corn, Jerusalem artichokes, hemp, garlic, onion; interpretation of the Tuskegee demonstration plots is recommended.

- Ornamental plantings: yaupon holly, lilies known to have hybridized, deodar cedar, silver maple, red maple, roses, yucca; replacement ornamental plantings are not recommended for specific outdoor interpretation.

1

Theme of plantings known to Dr. Carver would begin at entrance; when opportunity exists, consider replacement for planting beds so any non-natives do not become invasives

Manage and maintain viewshed from visitor center to prairie

Consolidate picnic area to this location

Moses Carver Farm exhibit orchard

New entrance road for overflow parking

Retain separate exit for overflow parking

Overflow parking; grass pavers stabilize area for vehicles

Manage and maintain restored grassland prairie; continue natural resource management

Carver Road

Carver Road

Interpretation of former farm features; accurate location of birthplace cabin, and original location of Moses Carver house

Retain existing interpretation along Carver Trail and enhance with plantings known to Dr. Carver, where appropriate

Manage and maintain Williams Pond

Replace mulch surfacing of Contemplative Trail with crushed aggregate

Clear woodlands for views, establish native warm-season grassfields and prairie communities

Moses Carver Farm garden plots (see plant list) reflect those present when Dr. Carver was a child on the the farm

Manage and maintain field spatial organization with hayfields, to reflect the agrarian setting of Dr. Carver's youth

Crushed aggregate trail expansion with boardwalks or bridges across streams to provide access to unique woodlands and associated interpretation

Mown trail expansion for access to more of the site; follow existing mown corridors where possible

Manage Harkins Woods to retain healthy native plant communities; continue natural resource management and remove invasive species

Consider management of this prairie unit as woodland with white oak/burr oak-pecan floodplain forest

Manage riparian woodlands to remove invasive species and promote a pre-settlement savanna-like composition

Clear woodlands and introduce plantings known to Dr. Carver

Plant persimmon grove and interpret as a key feature of Dr. Carver's childhood on the farm

Crushed aggregate trail through primary interpretive area

Preserve wet prairie areas and associated plant material

Manage and maintain existing trees

Manage woodlands to remove invasive species, continue natural resource management, and perpetuation of native species

Preserve wet prairie areas and associated plant material

Mown trail expansion for access to more of the site and enhanced interpretation; follow existing mown corridors where possible

Manage viewshed from former farmstead site to Carver Family Cemetery

Additional tree plantings for shade along the trail (see plant list)

Manage and maintain tree line along trail to the cemetery

Retain seasonal trail and resurface for accessibility

Proposed location of storage facility

Install new plantings to screen staff parking and the maintenance area

Tuskegee demonstration plots (see plant list)

Mown trail

VIEW

Carver Branch

Williams Branch

Harkins Branch

Dry Branch

Elder Road

1

2

3

4

5

6

7

7A

7B

8

9

This drawing was prepared to illustrate the Cultural Landscape Report/Environmental Assessment for George Washington Carver National Monument in 2015. This drawing is provided to illustrate potential treatment alternatives, and is not intended to serve as a design or construction document.

0' 400' 800'

SCALE 1" = 400'

DRAFT

Feb 04, 2015 - 10:52am G:\PROJECTS\George WC CLR-EA\Planning\AutoCAD\Active\GWCA_Base_20120212.dwg

Environmental Assessment and Cultural Landscape Report

for

George Washington Carver National Monument

Prepared by JMA, a CCRG company

Drawing No. GWCA 397 127385

PMIS No. _____

Legend

- GWCA Boundary
- 1-foot contour
- Stream
- Paved road
- Trail
- Building
- Split-rail (worm) fence
- Core Developed Area 22± acres
- Restored Grassland Prairie 87± acres
- Managed Hayfields 40± acres
- Managed Woodlands 51± acres
- Cleared Woodlands 10± acres
- Plantings Known to Carver
- Expanded Trails 4140± linear feet
- 4 Management Units
- Wet Prairie Areas

Sources:

National Park Service, Cultural Resource GIS office, CLI GIS conversion project, 2013.

Contours created from 7.5 minute digital elevation data, USGS, 1998, Newton County, MO (published Rolla, MO).

Heartland Network Inventory and Monitoring Program, "Vascular Plant Inventory, GWCA," 2004.

Figure 241.

Alternative 4 (Preferred Alternative)

Honor, Commemorate, and Interpret the Life and Legacy of George Washington Carver by Employing a Combination of Agricultural Heritage and Exhibits of Plants Known to Dr. Carver

5.3. Recommended Treatment Guidelines Associated with the George Washington Carver National Monument Cultural Landscape

The following section provides general guidelines for the treatment of the George Washington Carver National Monument cultural landscape that are intended to support the recommended rehabilitation approach as well as all treatment recommendations and alternatives developed in support of this CLR. These guidelines relate to a philosophy of cultural landscape treatment based on the Secretary of the Interior's "Standards for the Treatment of Historic Properties and the Guidelines for the Treatment of Cultural Landscapes," and a comprehensive view of the national monument as a whole. They should be used when planning for any and all landscape changes, and should be considered in connection with any treatments implemented in the future.

Land Use

- Avoid land use activities, permanent or temporary, that threaten or impair known or potential archeological resources.
- Monitor and regulate use of the landscape to minimize immediate and long-term damage to cultural resources.
- Consider equally both natural and cultural features in treatment decisions.

Buildings and Structures

- Consider the interpretive value of non-intrusive, non-contributing buildings and structures, and retain when possible.
- Consider the removal of non-contributing structures that are intrusive to the historic landscape only if they are found to be without historical or functional merit or value.
- Avoid conjectural reconstruction of historic buildings and structures.

Circulation

- Minimize the visual impacts of vehicles and vehicular access systems. Consider the impact on views when proposing new circulation systems. Also consider noise and other impacts that parking will have on the visitor experience and historic resources.
- Encourage pedestrian circulation as an alternative to vehicular circulation throughout the park.
- Minimize the visual impacts of new pedestrian access systems.
- Address the need to provide universal access to all visitor use areas of the park. Universally-accessible paths should follow the guidance afforded in Americans with Disabilities Act Accessibility Guidelines.
- Ensure that all paths are wide enough for two people to walk comfortably side by side, and evenly graded, and well-drained to prevent trampling of vegetation, soil compaction, and erosion of the path margins.

Sustainability

- Institute cultural and natural resource treatment and maintenance methods that are environmentally and culturally sensitive and sustainable over the long term.
- Minimize the extent of any ground disturbance, earth grading, compaction, and drainage pattern alteration.
- Promote biodiversity and native plant species.
- Limit the use of mitigating devices such as retaining walls, closed drainage systems, and grading.
- Implement the least-intrusive measures and those involving stabilization first, and subsequently proceed to the most invasive as necessary. Limit major new interventions to areas that have previously been disturbed.

- Emphasize landform-based solutions, such as grading, over hardscape solutions, such as retaining walls to address concerns relating to circulation, drainage, and new construction.

- Take into consideration life-cycle costing of materials, including their long-term wearing capacity and maintenance costs when evaluating options. Always consider materials that are non-toxic, durable, long-lived, and low-maintenance.

Topography

- Minimize soil disturbance and grading.

- Preserve existing landforms and natural drainage patterns to the greatest extent possible.

- Avoid attempts to reconstruct or restore historic grades unless supported by clear documentary evidence of their appearance or original design during a specific period.

Land Cover Management

- Encourage best management practices (BMPs), integrated pest management (IPM), and soil and erosion control measures in all maintenance and management practices in order to minimize water pollution and degradation of natural systems.

- Establish native vegetative cover when addressing the need for erosion control. Consider planting species that are suited to the local soil and moisture conditions.

New Design and Construction

- Avoid altering existing features or adversely affecting the landscape's historic character when adding new features to support interpretive, management, and visitor access functions. Features that facilitate access and interpretation should be designed to minimize adverse impacts on the character and features of the landscape. Design larger facilities to be as non-intrusive as possible while allowing for accessibility and safety. Limit the construction of new facilities to those that are absolutely necessary. Consider the use of temporary structures that do not require founding in the ground, or involve soil disturbance.

- Site necessary new buildings and structures out of key viewsheds. Consider designing necessary new facilities as low buildings situated in such a way as to be screened from view from primary visitor use areas. A cluster of smaller buildings that are tightly grouped and follow a consistent orientation is preferable to the establishment of one very large building. As possible, situate new structures relatively close to existing road corridors to limit the establishment of new roads. New buildings and structures should be compatible with local traditions of design and constructed of locally-available and indigenous materials such as stone and wood. The design of new buildings and structures should also be sympathetic to local traditions in terms of scale, massing, roof form, and details. New buildings and structures should be situated to lie lightly on the land, minimizing soil disturbance, particularly cut and fill. Sustainability should be considered in the choice of materials and energy use. Consider incorporating passive solar energy conservation strategies into the design of new buildings and structures. Also consider the local climate in the siting and design of buildings and their relationship to solar orientation, heat gain, shading, prevailing winds, and seasonal average temperatures to minimize energy costs. Limit the footprints of new buildings and structures by optimizing use and flexibility of both indoor and outdoor spaces.

- Avoid adding new features or altering existing features in ways that adversely affect the landscape's historic character. Introduce features to facilitate access and interpretation in ways that minimize adverse impacts. New construction should be limited to those alterations and additions that are necessary for visitor access, interpretation, and management. This might include vehicular,

pedestrian, and interpretive systems such as trails and paths, parking areas, and unobtrusive and minimal wayside, informational, identity, and regulatory sign systems. The new or altered features should be as unobtrusive as possible while allowing for accessibility and safety. Whenever possible, and taking into consideration the visitor experience without compromising visitor safety, utilize off-site facilities to accommodate contemporary uses.

- Evaluate all proposed new uses in consultation with a historical landscape architect and other appropriate professionals.

- Undertake sufficient study and recordation of landscape features requiring modification, repair, or replacement before work is performed to protect research and interpretive values.

- Protect and preserve archeological resources in place. If such resources must be disturbed, undertake mitigation measures such as recovery, curation, and documentation.

- Limit the use of destructive techniques, such as archeological excavation, to providing information required to support research, interpretation, and management goals.

- Retain and maintain historic materials, features, finishes, construction techniques, spaces, and spatial relationships when changes to the cultural landscape are considered.

- Design and site new additions or alterations to the landscape in such a way that they do not destroy historic materials, features, and spatial relationships that characterize the cultural landscape. Design all new additions and alterations to be a product of their time, and compatible with the historic resources in materials, size, scale and proportion, and massing. Differentiate new work from historic resources.

- Design and site new additions and alterations to the landscape in such a way that, if removed in the future, the essential form and integrity of the cultural landscape would be unimpaired.

- Retain and maintain changes to the cultural landscape that have acquired historic significance in their own right.

- Repair, rather than replace, deteriorated historic features. Replacement of severely deteriorated features should be based on archeological, documentary, or physical evidence. Such new features should also be based on archeological, documentary, or physical evidence; the new feature should match the old in design, color, texture, and, where possible, materials.

- Avoid landscape changes that create a false sense of historical development, including the addition of conjectural, typical, or representative features. Consider interpretation of typical features in cases where restoration is not possible but providing the information is important to the visitor experience.

- Design new features, systems, and programs to be as accessible as possible.

- Establish new wayside exhibits in the least intrusive manner possible to fulfill proposed new interpretive goals.

- Avoid the use of chemical or physical treatments that cause damage to cultural resources and natural systems. Undertake the surface cleaning of structures using the gentlest means possible.

- Minimize disturbance associated with the installation of visitor access facilities.

Adjacent Lands and Visual Quality

- Monitor local zoning and planning activities related to nearby adjacent development that may adversely impact the character and cultural resources within the viewshed of the park. Consider participating in the early stages

of any development plans for adjacent sites by working with developers during the planning process, suggesting increased setbacks and the least intrusive siting and character for new structures and roads.

- Coordinate with planning authorities on the development and construction of new features within view of the park that may impact the park visually or physically such as roads, zoning changes that may result in higher density residential or non-residential uses, sale of land to non-governmental entities, and cell towers or antennae.

- Work with neighbors and community groups to develop a program of monitoring unauthorized access to the park and destruction of resources.

- Educate adjacent property owners regarding resources located on their lands. Work with these owners to develop programs for the protection of the resources.

- Develop or maintain visual buffers along property lines abutting development. Develop relationships with adjacent landowners to determine the need for establishing additional buffers.

- Utilize screening methods that blend with the surrounding character of the site, such as planting native vegetation, and do not become a secondary visual intrusion.

- Coordinate with adjacent and nearby property owners to determine if they are amenable to selling or donating scenic easements for all adjacent property that will remain visible from the park.

- Work with owners of adjacent roads and other properties to ensure that historic resources and park character are considered in the development of any changes to the adjacent features, especially those directly within the view sheds of the park.

Access to Resources

- Develop an interpretive program that addresses cultural resources, natural systems, and their interrelationships, as well as layers of landscape history.

- Minimize the visual and physical impacts of interpretive and visitor access facilities on cultural resources and natural systems.

- Erect the minimal number of signs necessary to meet identity, directional, interpretive, and regulatory needs.

- Develop interpretive programs and media to be as accessible as possible for the widest range of visitors.

Role of Preservation Specialists

- Undertake all treatment projects under the direction of appropriate specialists, including historical landscape architects, historical architects, archeologists, conservators, natural resource management specialists, and qualified technicians and artisans.

Documentation

- Document, through drawings, photographs, and notes, all changes and treatments. Maintain records of treatments and preserve this documentation according to professional archival standards.

Secretary of the Interior's Standards for Rehabilitation

The following section summarizes the standards for rehabilitation espoused by the Secretary of the Interior for historic properties. The ten basic principles that comprise the standards are intended to help preserve the distinctive character of a site, while also allowing for reasonable change to meet new needs. The standards (36 CFR Part 67) apply to historic properties of all periods, locations, sizes, conditions, and uses. These standards create a baseline of guidance to which intended changes to the historic landscape must be compared. These standards are neither technical

nor prescriptive, but promote responsible preservation practices as follows:

1. A property will be used as it was historically, or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.

5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

5.4 Selection of the Preferred Alternative

The preferred alternative emerged from presentation of the no action alternative and two action alternatives during two public scoping sessions on May 14, 2014. Stakeholders notified and invited included agencies, NPS Midwest Region representatives, the State Historic Preservation Officer, Tribal Historic Preservation Officers, Heartland Network, volunteers, former park staff, friends, historians, politicians and other professionals. Comments from those two sessions suggested the development of a third action alternative to blend particular elements of the first two. Additional meetings on the same day with park staff and the THPO representative for the Osage Nation also engendered comments suggesting the development of a third action to blend desired elements. Most stakeholders and park staff involved in the public scoping session were in favor of Alternative 3, with modifications.

Alternative 4 was developed in response to these comments. An initial version of Alternative 4 was provided to the park for consideration. Based on their feedback and comment, additional refinements were made to Alternative 4. The refined version was again reviewed by the park. The park's response suggested that Alternative 4 would best meet the identified goals and objectives, including restoration of several lost features of the cultural landscape, enhancing interpretation through more trails and exhibit nodes related to George Washington Carver and plants from his early years on the farm as well as his work at Tuskegee, adding more of an agricultural appearance with the proposed haying in some of the prairie units, providing for overflow parking, and more. The alternative was seen as providing for a more optimum visitor experience if/when the park is able to implement, and the CLR will provide a sound vision and serve as a guide for future management. Concerns remain, however, regarding the increasing footprint on the landscape and the potential implementation costs.

The new alternative was also provided to several stakeholders for consideration. All parties were in support of selecting the preferred alternative over the other action alternatives as well as the no action alternative. In their response, the Heartland Network indicated:

> We generally applaud the park's effort to resolve the long standing debate regarding the appropriate memorialization of Carver's life at the monument. We believe the desired alternative achieves a reasonable balance between restoration of important cultural landscape features and ongoing management and interpretation of important natural resources. Overall, we think the design concepts will improve the connection of the landscape and interpretive themes at the park.

5.5 The Environmentally Preferred Alternative

As required under CEQ regulations 40 CFR 1502.2(d), NEPA documents must include a section stating how each alternative analyzed in detail would or would not achieve the requirements of sections 101 and 102(1) of NEPA and other environmental laws and policies. In the park service, this requirement is met by 1) disclosing how each alternative, one of which is identified as the environmentally preferable, meets the criteria set forth in section 101 (b) of NEPA; and 2) any inconsistencies between the alternatives analyzed in detail and other environmental laws and policies.

The environmentally preferable alternative is the alternative that will promote the national environmental policy expressed in the National Environmental Policy Act (NEPA). Section 101 (b) defines the environmentally preferable alternative as the alternative that causes the least amount of damage to the biological and physical environment and that best protects, preserve, and enhances historic, cultural, and natural resources, while attaining the widest range of beneficial uses of the environment. The criteria are as follows:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities;
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The Council on Environmental Quality (CEQ) provides additional direction in its guidance *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations* (1981):

> The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Ordinarily, this means that the alternative which causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources.

Alternative 4 honors, commemorates, and interprets the life and legacy of George Washington Carver by employing a combination of agricultural heritage and ethnobotanical exhibits. Park planning efforts conducted since 1960s have continually grappled with appropriate measures for enhancing interpretation of both the landscape that inspired Dr. Carver while living on the farm, as well as his achievements in the arts and sciences. This treatment alternative focuses on the interpretation of several additional features known to have been present on the Moses Carver farm during George Washington Carver's boyhood, including an indication of the scale, arrangement, orientation, and elements that comprised the farmstead area, field and pasture patterns of agricultural production, walnut hedgerows, the fruit and nut orchard, and persimmon grove. Coupled with interpretation of these features, the plants that Carver is known to have incorporated into his work throughout his life for food, industrial production, medicines, dyes, fibers, and other ethnobotanical uses will be planted along park circulation features and interpreted. These ethnobotanical elements will trace Carver's youth through his scientific career, helping to knit together his early years when he developed a love of nature, plants, and science,

with his life's work. Areas of restored grassland prairie within the park that help to promote species diversity and soil and water conservation, will be interpreted as a contemporary expression of Carver's early twentieth century activities. This alternative also focuses on enhancing natural resource management of the restored grassland prairie and Harkins Woods for health, diversity, and soil and water conservation. Overall this alternative will improve and enhance the connection of the landscape and interpretive themes at the park.

Therefore, Alternative 4 best addresses all the criteria presented in Section 101 (b) for the environmentally preferable alternative. Alternative 4 is the environmentally preferable alternative.

While the no action alternative (alternative 1) would maintain existing conditions, it would not be considered the environmentally preferable alternative because it would not meet the widest range of beneficial uses of the environment without degradation nor does it enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources. The no action alternative would not improve or enhance the connection of the landscape and interpretive themes at the park. The other action alternatives, while somewhat similar to Alternative 4, do not combine the aspects of agricultural heritage and ethnobotanical exhibits related to the landscape to convey the full story of the life and legacy of Dr. George Washington Carver.

5.6 Alternatives Considered but Dismissed

Five action alternatives were developed by the CLR/EA team for consideration by the park as part of the 75 percent draft report. They include the following:

- Limited Restoration for Interpretation of the Landscape during George Washington Carver's life on the farm
- Interpreting the Life and Work of George Washington Carver Through Ethnobotany
- Exploration of Topics in Environmental Stewardship and Scientific Education based on the Principles of George Washington Carver.
- Expanding Recreational Opportunities.
- Full Restoration of the Landscape Present during George Washington Carver's Life on the farm.

Following review of the 75 percent draft by the park and the region, the CLR/EA team convened by conference call to discuss all of the action alternatives prior to the planned stakeholder scoping meeting. Based on discussions among team members, three of the action alternatives were dismissed prior to presentation to stakeholders. The first—Exploration of Topics in Environmental Stewardship and Scientific Education based on the Principles of George Washington Carver—was dismissed due to the fact that it concentrated too heavily on Carver's later career and did not encompass the experience of his youth on the Moses Carver farm. The second—Expanding Recreational Opportunities—was found to be inconsistent with the goals and mission of the park. The third—Full Restoration of the Landscape Present during George Washington Carver's Life on the farm—was considered to be impossible to implement and it denied the expression of the memorial mission of the park, while also precluding interpretation of Carver's later accomplishments.

Each of the action alternatives considered but dismissed are conveyed below for reference. Despite the fact that each of these was dismissed, it was agreed that aspects of each afforded valuable ideas that might be considered for inclusion in the preferred alternative.

Exploration of Topics in Environmental Stewardship and Scientific Education

George Washington Carver was particularly concerned with environmental stewardship. His work in the Southern United States involved helping farmers to protect against soil loss associated with cotton farming techniques that led to devastating results for sharecropping farmers and others after Reconstruction. Carver worked with farmers to save and conserve soil, and to protect water resources. He also taught farmers to work with native plant communities, which offered a source of nutritious and abundantly available food that was often overlooked. An environmental stewardship ethic similar to that practiced by Carver is present at the park, manifested in the restoration of native grassland prairie and efforts to control and eradicate invasive species, protect water quality, and identify and protect wildlife habitat.

This rehabilitation alternative explores expanding the use of the park to practice and teach environmental stewardship to visitors through interpretation and exhibits, as well as land stewardship practices. This alternative additionally explores the role of scientific research and inquiry at the national monument. Specific additions and changes to the park environment resulting from this alternative might include:

- identification of best management practices for the landscape that support sustainable treatment of natural resources. The resulting Best Management Practices (BMPs) would be intended to support soil and water conservation, with particular emphasis on establishing native plant communities that support a healthy ecosystem, including pollinators and wildlife, with the least input of non-renewable energy. BMPs would consider the role of vegetative cover in conserving soil, and the ecological implications of maintaining healthy plant communities, including the associated need for water resource protection, and diversity of good quality wildlife habitat;

- use of BMPs to protect the park's natural resources could be explored as an interpretive theme within the visitor center and in park interpretive programs;

- updating of existing landscape features, such as the entrance road and parking to promote sustainability through the use of green infrastructure such as filter strips, pervious pavements, rain barrels, and rain gardens;

- continued interpretation within the visitor core to feature cultural evidence of the Carver farm;

- expansion of the existing trail system to include a perimeter trail for additional opportunities for environmental education;

- creation of a scientific research center in the area where the housing buildings are currently located, either by adaptive reuse or full replacement. The center would be developed through partnerships with other educational institutions and offer housing, classroom, research and laboratory facilities, as well as field areas for use by students.

- maintenance of a separate access and parking for the center;

- development of experimental field areas to include the former mine site and to augment scientific research by students participating in programs at the center.

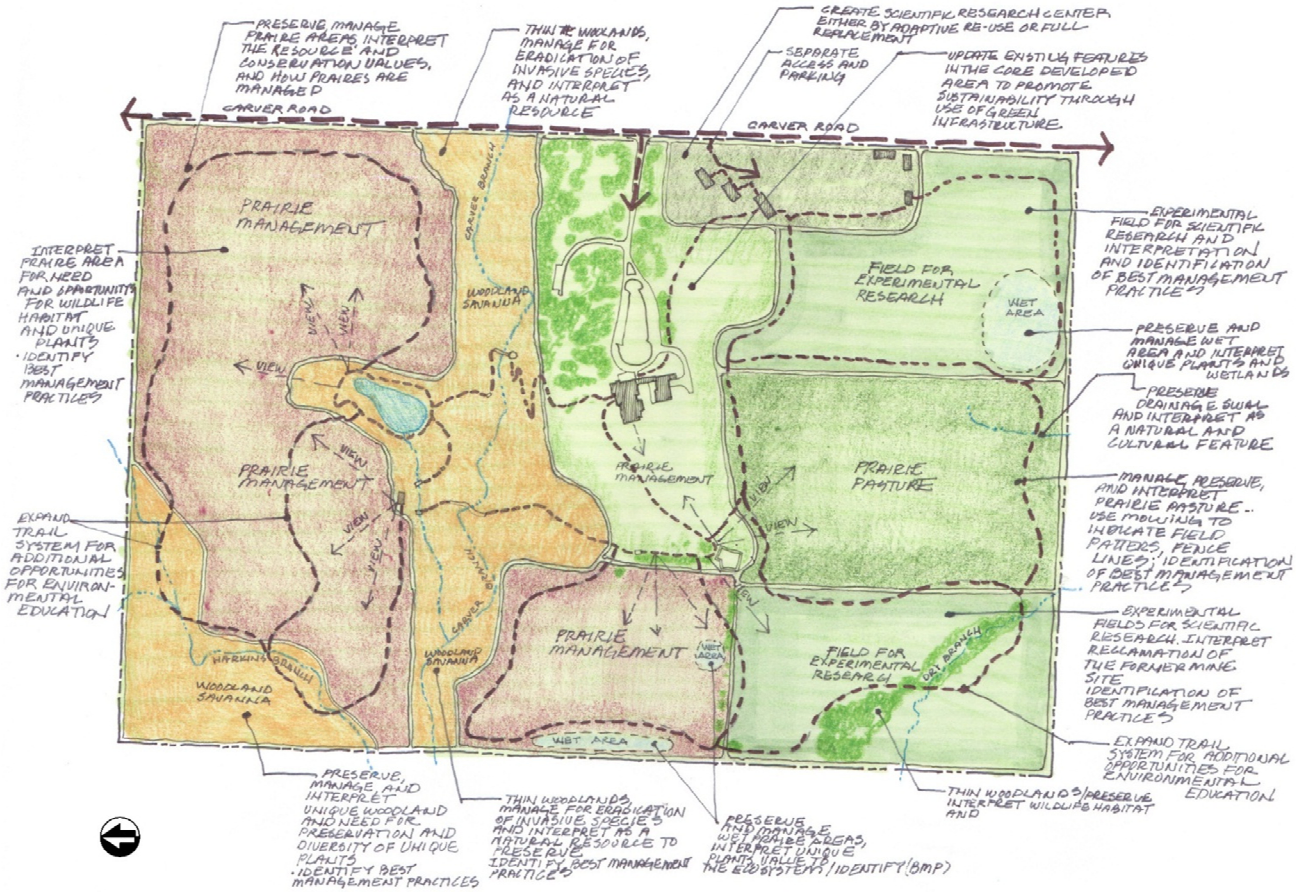


FIGURE 242. Exploration of topics in environmental stewardship and scientific education.

Expanding Recreational Opportunities

George Washington Carver National Monument extends over 240 acres in a rural area with few outdoor recreational facilities. The current park trail system traces a one-mile route of historical importance. Visitors currently use the trail for both educational and recreational purposes. Visitors also travel to the park to enjoy the recreational amenities afforded as part of the existing picnic area. Regional organizations have expressed the need for more recreational opportunities for local residents as well as visitors to the area.

This rehabilitation alternative suggests establishing new trails on the property as a recreational amenity for the benefit of all visitors. Specific additions and changes to the park environment resulting from this alternative might include:

- design of trails to accommodate passive recreational activities such as walking and running;
- design of the trail system as a series of loops that extend through the fields and woods to the south of the visitor center;
- development of the former mine site to accommodate more active recreation in the form of paved multi-use trails that might accommodate bicyclists.
- provision of a separate entrance and access along Elder Road or Carver Road;
- demolition of the park housing buildings and conversion of the area into a staging space for recreational activities and parking.

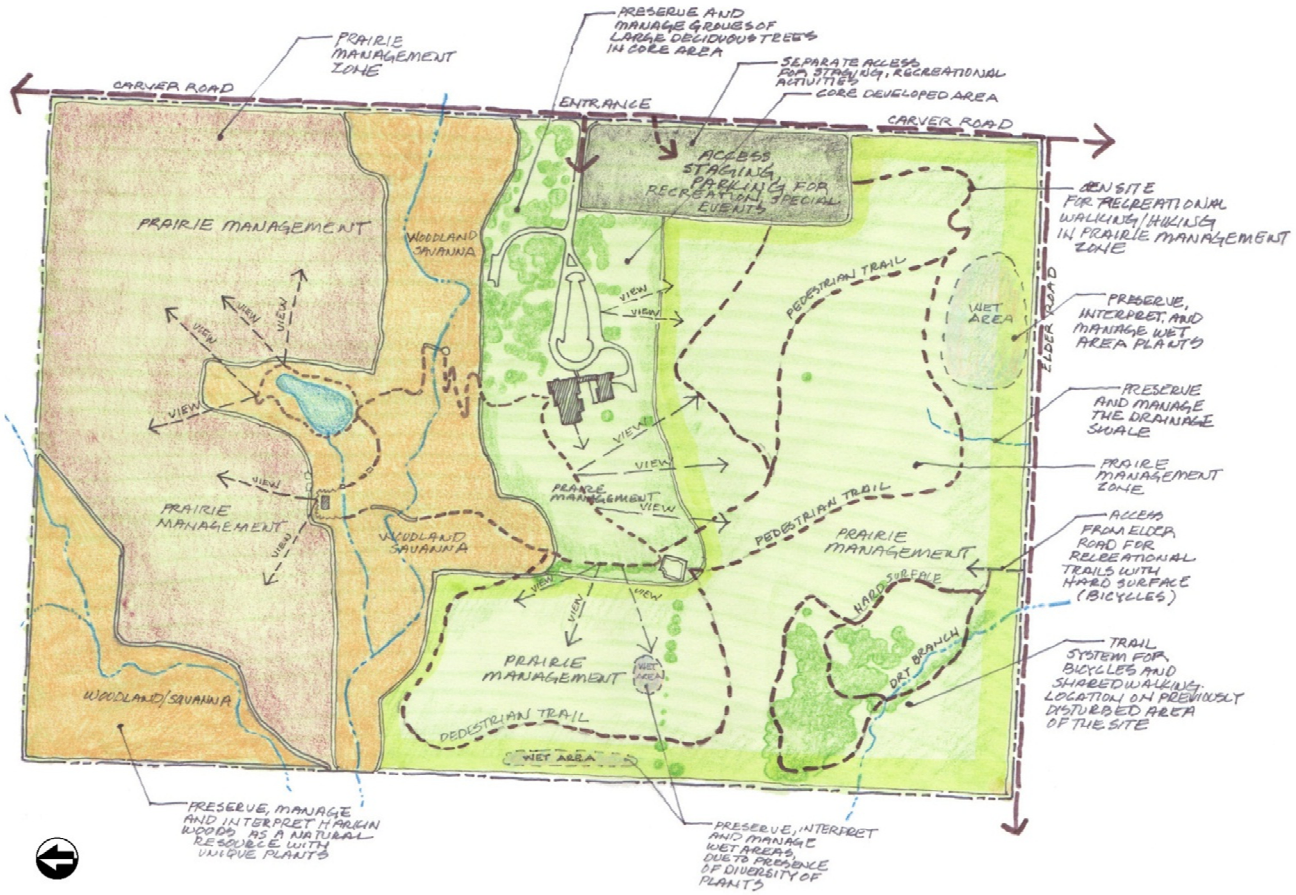


FIGURE 243. Expanding recreational opportunities.

Full Restoration of the Landscape Present during George Washington Carver's Life on the Farm

The park landscape is very different today than that which was experienced by George Washington Carver during the third quarter of the nineteenth century. As a property established to commemorate the life and contributions of Carver, the park landscape does not adequately depict conditions experienced by Carver.

This restoration alternative suggests enhancing visitor understanding of Carver's life by fully returning the park landscape to its character during the period during which George Washington Carver lived there: circa 1864–1877. Specific additions and changes to the park environment resulting from this alternative might include:

- conversion of existing grassland prairie to agricultural uses;
- establishment of field patterns that depict what was present during the nineteenth century;
- reduction of the size of existing woodlands;
- removal of understory growth to reflect the patterns associated with nineteenth century livestock grazing;
- removal of Williams Pond;
- return of the second Carver dwelling and the birthplace cabin sites to their accurate locations;

- use of archeological investigations to determine what the farmstead area looked like for interpretive and potential restoration;
- design of a new Carver Trail that connects points in the restored landscape;
- reestablishment of the orchard;
- removal of the current visitor center and restoration of this critical portion of the park to its historic appearance;
- demolition of the housing buildings to provide new visitor orientation, access, and parking; and
- expansion of the trail system throughout the site to provide more opportunities to interpret the restored historic landscape.

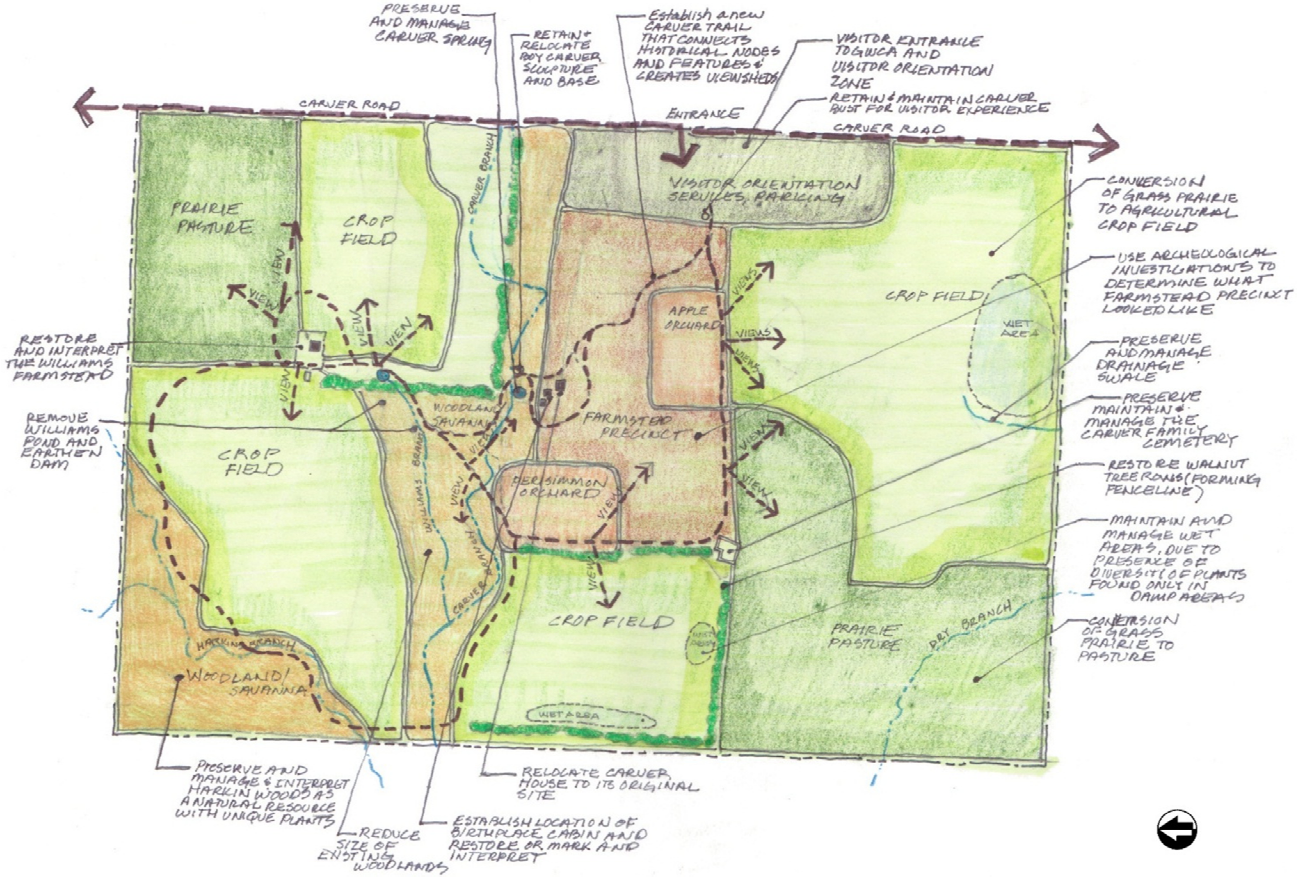


FIGURE 244. Full restoration of the landscape present during George Washington Carver's life on the farm.

5.7 Mitigation

The NPS places strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. To help ensure the protection of natural and cultural resources and the quality of the visitor experience, the following protective measures would be implemented as part of the preferred alternative (Table 1). The NPS would implement an appropriate level of monitoring throughout the construction process to help ensure that protective measures are being properly implemented and are achieving their intended results.

Table 5-1. Mitigation

Resource Area	Mitigation
General Considerations	Where necessary for resource or visitor protection, work areas would be identified with construction fence, silt fence, or some similar material prior to any activity. The fencing would define the work zone and confine activity to the minimum area required. All protection measures would be clearly stated in the construction specifications, and workers would be instructed to avoid conducting activities beyond the work zone. Disturbances would be limited to areas inside the designated construction limits. No machinery or equipment would access areas outside the work limits. Construction equipment staging would occur within previously disturbed areas as much as possible. All staging and stockpiling areas would be returned to preconstruction conditions following construction. Contractors would be required to properly maintain construction equipment (i.e., mufflers and brakes) to minimize noise. All tools, equipment, barricades, signs, surplus materials, and rubbish would be removed from the project work limits upon project completion.
Soils	BMPs would be developed to support of the implementation and management of all the action alternatives.
Grassland and Forest Vegetation	All disturbed ground would be reclaimed using appropriate BMPs including planting native plants.
Cultural Vegetation	Until the soil is stable and vegetation is established, erosion-control measures would be implemented to minimize erosion and prevent sediment from leaving the site.
Wildlife and Wildlife Habitat	Temporary barriers would be provided to protect existing trees and shrubs that are not identified for removal.
Water Quality	BMPs would be developed for site clearing, turf cover establishment and maintenance, and invasive plant control.
Wetlands and Floodplains	BMPs would also target tree clearing, installation of plants and trees, landscape maintenance and riparian buffer preservation
Cultural Resources	All activities would comply with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 Federal Register 44716, revised). Prior to any soil disturbing activities, a thorough geophysical baseline survey of the property would be conducted and adequate archeological ground truthing of the geophysical anomalies would be conducted to determine their nature, integrity, and extent. Known archeological resources in the vicinity of project activities would be identified and delineated for avoidance prior to project work. NPS would continue to coordinate with the SHPO throughout the course of the project to protect and mitigate cultural resources affected by any of the action alternatives. Should any archeological resources be uncovered during construction, as appropriate, work would be halted in the area and NPS associated archeologists, the Missouri SHPO, and appropriate Native American tribes would be contacted for further consultation. Cultural resource staff at George Washington Carver National Monument would be available during construction to advise or take appropriate actions should any archeological resources be

	uncovered during construction. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) would be followed. NPS would ensure that all contractors and sub-contractors are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Contractors and sub-contractors also would be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction. Equipment and material staging areas would avoid known archeological resources.
Visitor Experience and Park Operations	Visitors would be informed in advance of construction activities via the park website and visitor center.

5.8 Summary of Goals and Objectives by Alternative

Table 5-2. Summary of Goals and Objectives by Alternative

Project Goals:	Treatment Alternative 1 (No Action)	Treatment Alternative 2	Treatment Alternative 3	Treatment Alternative 4
Protect and manage cultural and natural resources at George Washington Carver National Monument				
Address the entire 240-acre cultural landscape, balancing historic landscape protection with natural resource efforts. This includes the 30 acres of disturbed land acquired by the Park in 2006.	The entire 240 acres are managed by the Park. Strategies may not emphasize balancing historic landscape protection with natural resource efforts and therefore do not meet this objective. The 30 acre site is not currently managed as prairie that is responsive to recommendations in previous studies.	This alternative meets this objective as it addresses the entire 240 acres and includes recommendations for balancing historic landscape protection with natural resource efforts. It also includes conversion of the 30-acre parcel to prairie to incorporate it into the overall approach to landcover management beyond the central interpretive area.	This alternative meets this objective as it addresses the entire 240 acres and includes recommendations for balancing historic landscape protection with natural resource efforts. It also includes conversion of the 30-acre parcel to prairie to incorporate it into the overall approach to landcover management beyond the central interpretive area.	This alternative meets this objective as it addresses the entire 240 acres and includes recommendations for balancing historic landscape protection with natural resource efforts. It also includes conversion of the 30-acre parcel to prairie to incorporate it into the overall approach to landcover management beyond the central interpretive area.
Manage cultural and natural resources to memorialize Dr. Carver's life in a dignified and inspirational setting.	Current management strategies meet this objective to memorialize Dr. Carver's life in a dignified and inspirational setting through maintenance of existing interpretive programs and media.	Based on goals derived from the GMP, the project scope, workshops and NPS communications, this alternative meets this objective.	Based on goals derived from the GMP, the project scope, workshops and NPS communications, this alternative meets this objective.	Based on goals derived from the GMP, the project scope, workshops and NPS communications, this alternative meets this objective.
Preserve the agrarian setting.	Existing prairie management is more oriented to Natural Resource conservation and less to agrarian land use. This objective is partially met with the existing strategies in place.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective.

Preserve the setting of the Moses Carver farm and birthplace of George Washington Carver.	Existing setting and structure of the Moses Carver house is preserved as well as the currently defined and interpreted location of the birth house of George Washington Carver. The objective of preserving the farmstead setting and the exact locations of the Moses Carver house and the birthplace house is not met.	This alternative recommends the interpretation of the accurate location of the birthplace cabin, Moses Carver homestead and other former Moses Carver farm features to depict the character of the Moses Carver farm and agricultural activities, based on further research and investigation using foundation outlines and mow patterns. This alternative meets the project objective.	This alternative recommends preservation of the existing Moses Carver home structure and site as well as the currently defined and interpreted location of the birth house of Dr. Carver. This alternative does not fully meet the objective for preservation of the setting of the farm and other agricultural activities.	This alternative recommends the interpretation of the accurate location of the birthplace cabin, Moses Carver homestead and other former Moses Carver farm features to depict the character of the Moses Carver farm and agricultural activities, based on further research and investigation using foundation outlines and mow patterns. This alternative meets the project objective.
Support and enhance existing interpretive/ educational programs at the national monument.				
Integrate interpretation with an approach to managing the cultural landscape.	Existing interpretation strategies would remain with no current approach to integration with managing the cultural landscape. The alternative would not meet this objective.	This alternative meets the objective due to interpretation of other former Moses Carver farm features, clearing of woodlands not present during the Carver period, thinning and management of bottomland woodlands to depict the historic savanna-like character, and expansion of the Carver Trail to provide access to viewsheds of agricultural setting and fields.	This alternative partially meets the objective due to the recommended continued natural resource management of restored grassland prairie and Harkins Woods, and interpretation of the approach. Otherwise the interpretive approach focuses on Dr. Carver's exploration of the uses of plants and the application of scientific knowledge to improve the human condition through a lens of ethnobotany.	This alternative fully meets the objective due to the mowing and haying of prairie units to interpret the agrarian setting, planting of a heritage fruit and nut orchard to interpret the Carver farm, planting of a persimmon grove to interpret one of the key features described by Carver from his childhood and enhancing natural resource management of restored grassland prairie and Harkins Wood for health, diversity and soil and water conservation.

Utilize the LRIP visitor experience objectives and goals to form justification for proposed introduction of elements of the historic landscape.	Existing conditions will remain where the Park has based LRIP visitor experience objectives for introduction of elements or features of the historic landscape. This alternative would not meet the goal of introduction of new elements for interpretation in the historic landscape.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective.
Expand opportunities on the site for further interpretation and commemoration of the entire life and legacy of George Washington Carver.	Existing efforts to enhance interpretation and commemoration of the entire life and legacy of Dr. Carver will remain. This alternative would not meet the goal of expansion.	This alternative does not meet the objective as it does not provide or adequately represent Dr. Carver's accomplishments over the course of this lifetime.	This alternative partially meets the objective as it focuses on the planting native species known to have been a focus of Dr. Carver's work and interpretation of the ways plant species served local resident in a variety of capacities during the nineteenth century and first part of the twentieth century. The alternative does not adequately blend Carver's early years with his later work at Tuskegee.	This alternative combines elements of alternatives 2 and 3 and fully meets the objective. The alternative blends the concept of plantings familiar to Dr. Carver, with site-specific enhancement of the interpretive programming involving the nineteenth century Moses Carver farm and enhanced environmental education opportunities. Also Dr. Carver's work at Tuskegee is recognized and interpreted.
Expand use of plants other landscape features in interpretation and commemoration of the life-long achievements of Dr. Carver.	Existing plants will remain within the context of current interpretation. This alternative does not meet the objective of expansion of plants and other landscape features in interpretation.	This alternative partially meets the objective. Use of plants and other landscape features is not emphasized as much as in Alternative 3 and 4.	This alternative partially meets the objective of the use of plants and landscape features in interpretation and commemoration of Dr. Carver. It does not adequately blend his early years with his later work at Tuskegee.	This alternative fully meets the objective with the use of plants and landscape features in interpretation and commemoration of Dr. Carver. It uses plants and landscape features to blend his early years with interpretation of his later work at Tuskegee.

Provide support and enhancement of the overall visitor experience.				
Focus rehabilitation treatment on providing opportunities for the public to experience the peaceful environment and reflect on Dr. Carver's life.	Existing opportunities to experience the peaceful environment will remain and address this objective. Rehabilitation treatment is not part of this alternative.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective.
Address accessibility needs in existing areas such as the Moses Carver house, Boy Carver Statue, picnic area, and other deficiencies noted in the 2013 NCA assessment.	This objective will be met within the existing framework of developing necessary future park projects.	Any deficiencies noted in the 2013 NCA assessment will be addressed by this alternative.	Any deficiencies noted in the 2013 NCA assessment will be addressed by this alternative.	Any deficiencies noted in the 2013 NCA assessment will be addressed by this alternative.
Provide universal accessibility to any proposed features such as trails and interpretive waysides.	This objective will be met within the existing framework of developing necessary future park projects.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective. Accessibility compliance would be a part of all site restorations, rehabilitation or installation of new features in this alternative.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective. Accessibility compliance would be a part of all site restorations, rehabilitations or installation of new features in this alternative.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective. Accessibility compliance would be a part of all site restorations, rehabilitations or installation of new features in this alternative.
Conduct detailed investigations to locate the actual site of the Carver birthplace cabin and incorporate into the visitor experience	This objective will be met within the existing framework of developing necessary future park projects, including archeological investigations.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective.	The focus of this rehabilitation alternative is on the interpretation of Carver's work and career through plants known to have been the focus of his experiments and scientific exploration. It does not meet this objective.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective.

Provide alternative management strategies for park operations and maintenance.				
Develop sustained and adequate management strategies for the prairie zones based on interpretation of the cultural landscape, conservation of natural resources, and viewsheds.	Existing management strategies are currently based on Natural Resource preservation as prescribed in previous studies. This alternative does not meet the objective due to lack of integration of interpretation of cultural landscape and conservation of natural resources.	This alternative meets this objective through recommendations of adequate management strategies for the prairie zones based on interpretation of the cultural landscape, conservation of natural resources, and viewsheds.	This alternative partially meets this objective, but focuses more on the addition of plantings known to have been a focus of Dr. Carver's work and his exploration of the uses of plants as a scientist during the first part of the twentieth century.	This alternative meets this objective through recommendations of adequate management strategies for the prairie zones based on interpretation of the cultural landscape, conservation of natural resources, and viewsheds.
Manage various vegetation across the site, incorporating recommendations from past studies, the Missouri Resource Assessment, input from the Heartland Inventory and Monitoring Program and guidance from Heartland Network Invasive Plant Management Plan/EA Assessment.	Existing vegetation management does in part incorporate some recommendations based on previous studies. This alternative partially meets this objective.	This alternative partially meets this objective, and only uses some of the recommendations in the previous studies to combine with other goals and objectives for rehabilitation of the site.	This alternative partially meets this objective, and only uses some of the recommendations in the previous studies to combine with other goals and objectives for rehabilitation of the site.	This alternative partially meets this objective, and only uses some of the recommendations in the previous studies to combine with other goals and objectives for rehabilitation of the site.
Develop sustained and adequate management strategies for the core developed area (app. 20 acres) requiring intensive management and including the visitor center/maintenance building complex, the area immediately adjacent to the memorial entrance, the picnic area, and the 1 mile Carver Trail.	Current management and maintenance strategies would continue. This alternative would not meet the objective as it does not address all issues for intensive management of the core developed area.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective. Long range sustainable repair and maintenance will be utilized for these features.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective. Long range sustainable repair and maintenance will be utilized for these features.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective. Long range sustainable repair and maintenance will be utilized for these features.

Develop sustained and adequate management strategies to consider how woodlands and open space and savanna areas might address differences between the contemporary landscape and the former spatial character of the property during the Carver period, circa 1865–1877.	Current management strategies would continue. This alternative would not meet the objective as it does not address strategies to highlight differences in the contemporary landscape and the former spatial character of the property during the Carver period.	This alternative meets the objective by recommending the clearing of woodlands not present during the Carver period and thinning and management of bottomland woodlands to depict the historic savanna-like character.	This alternative does not meet the objective, as the recommended thinning of woodlands is for the planting of ethnobotanical species, such as a persimmon grove.	This alternative partially meets the objective through recommendations such as managing riparian woodlands to remove invasive species and promote a pre-settlement savanna-like composition, and interpreting bottomland farming practices during the nineteenth century.
Develop sustained and adequate management strategies for repair and maintenance of the Carver family cemetery perimeter wall and headstones.	Current management strategies will remain. This alternative does not meet the objective of a long range strategy to focus on sustainable solutions to the repair and maintenance of the cemetery and specifically the perimeter wall and headstones.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective. Long range sustainable repair and maintenance will be utilized for these features.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective. Long range sustainable repair and maintenance will be utilized for these features.	Based on goals derived from the GMP, the project scope, workshops, and NPS communications, this alternative meets this objective. Long range sustainable repair and maintenance will be utilized for these features.

5.9 Summary of Impacts by Alternative

Table 5-3. Summary of Impacts by Alternative

Impact Topic	Treatment Alternative 1 (No Action)	Treatment Alternative 2	Treatment Alternative 3	Treatment Alternative 4
Soils	No changes to current conditions. Existing management or maintenance strategies remain in place. No further clearing would be undertaken and current mowing and vegetation management regimens would continue.	Approximately 49 acres of total 61 acres of woodland; management for historical spatial patterns, historic character, and managed riparian woodland as corridors projected into savanna-like landscapes, with less dense tree cover, removal of invasive species, and continued natural resource management 12 acres of cleared woodlands Trail Expansion: App. 4680 LF	Approximately 51 acres of total 61 acres of woodland; management for removal of invasive species and continued natural resource management and sustaining ethnobotanical plantings Approximately 10 acres of woodland cleared for ethnobotanical plantings and views Trail Expansion: App. 5400 LF	Approximately 51 acres of total 61 acres of woodland; management for interpretation of historical farmstead, and managed riparian woodland as corridors projected into savanna-like landscapes, with less dense tree cover, removal of invasive species, and continued natural resource management 10 acres of woodland cleared for plantings familiar to Dr. Carver and views Trail Expansion: App. 4140 LF
	Overall Impact: Overall impact would be ***park-wide, long term, and negligible adverse impact on soils***	**Overall Impact:** Overall impact would be ***local, short-term, and moderate adverse impact*** on soils.	**Overall Impact** Overall impact would be ***local, short-term, and minor adverse impact*** on soils.	**Overall Impact** Overall impact would be ***local, short-term, and moderate adverse impact*** on soils.
	Cumulative Impact Cumulative effects would be local, short-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be local, short-term, moderate and adverse.	**Cumulative Impact** Cumulative effects would be local, short-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be local, short-term, moderate and adverse
Vegetation (Grassland and Forest	Existing vegetation management strategies remain in place. The park manages both grassland and forest. Grasslands cover app. 127 acres and woodlands cover app. 61 acres. Cultural vegetation in the core developed area covers app. 22 acres.	Comprehensive woodland management and removal of invasive species management strategies as well as prairie management strategies recommended to the park by previous studies. Continued natural resource management	Comprehensive woodland management and removal of invasive species management strategies as well as prairie management strategies recommended to the park by previous studies. Continued natural resource management	Comprehensive woodland management and removal of invasive species management strategies as well as prairie management strategies recommended to the park by previous studies. Continued natural resource management

	Overall Impact Overall impacts would be ***park-wide, long-term, minor and adverse*** on grassland prairie. Overall impacts would be ***local, long-term, moderate, and adverse*** on woodlands	**Overall Impact** Overall impacts would be ***park-wide, short-term, moderate and adverse impact*** to grassland prairie and woodlands during implementation. Overall impacts would also be ***park-wide, long-term, moderate and beneficial*** to grasslands and woodlands once established.	**Overall Impact** Overall impacts would be ***park-wide, short-term, minor and adverse impacts*** to grassland prairie and woodlands during implementation. Overall impacts would be ***park-wide, long-term, minor and beneficial impacts*** to grasslands and woodlands once established.	**Overall Impact** Overall impacts would be ***park-wide, short-term, moderate impacts*** to grassland prairie and woodlands during implementation. Overall impacts would also have ***park-wide, long-term moderate and beneficial*** impacts to grasslands and woodlands once established.
	Cumulative Impact Cumulative effects would be park-wide, short-term, moderate and adverse.	**Cumulative Impact** Cumulative effects would be park-wide, long-term moderate and adverse to moderate and beneficial.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, minor and adverse to minor and beneficial.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, moderate and adverse to moderate and beneficial.
Water Quality	Protection of surface water and ground water is a management priority and currently water quality meets or exceeds all applicable water quality standards… Protection will continue with the current management and maintenance strategies in place.	Protection will be expanded to include the stabilization of the stream banks and preservation of landscape patterns of spatial organization composed in part by riparian woodlands along stream corridors. Management strategies will address Williams Pond as well and the springs that occur on the site.	Protection will be expanded to include the stabilization of the stream banks and preservation of landscape patterns of spatial organization composed in part by riparian woodlands along stream corridors. Management strategies will address Williams Pond as well and the springs that occur on the site.	Protection will be expanded to include the stabilization of the stream banks and preservation of landscape patterns of spatial organization composed in part by riparian woodlands along stream corridors. Management strategies will address Williams Pond as well and the springs that occur on the site.
	Overall Impact Overall impact would be ***park-wide, long-term, negligible, adverse*** impact on water quality	**Overall Impact** Overall impact would be ***park-wide, long-term, minor, and beneficial impact*** on water quality.	**Overall Impact** Overall impact would be ***park-wide, long-term and minor beneficial impact*** on water quality	**Overall Impact** Overall impact would be ***park-wide, long-term and minor beneficial impact*** on water quality
	Cumulative Impact Cumulative effects would be local, short-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, minor and beneficial.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, minor and beneficial.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, minor and beneficial.

Wildlife and Wildlife Habitat	Existing habitat would remain in place to continue to support populations of birds, mammals, and reptiles that currently inhabit the park landscape. Over time, the existing successional woodland would continue to mature.	Implementing construction of overflow parking, restoration of the persimmon grove, and expansion of the trail system would displace or disturb some vegetation that is wildlife habitat. Use of BMPs would be implemented to minimize impacts to wildlife habitat.	Implementing construction of overflow parking, restoration of the persimmon grove, and expansion of the trail system would displace or disturb some vegetation that is wildlife habitat. Use of BMPs would be implemented to minimize impacts to wildlife habitat.	Implementing construction of overflow parking, restoration of the persimmon grove, and expansion of the trail system would displace or disturb some vegetation that is wildlife habitat. Use of BMPs would be implemented to minimize impacts to wildlife habitat.
	Overall Impact Overall impact would be ***park-wide, long-term, minor, adverse impact*** on wildlife and wildlife habitat.	**Overall Impact** Overall impact would be ***park-wide, short-term, minor, adverse impact*** to wildlife and wildlife habitat	**Overall Impact** Overall impact would be ***park-wide, short-term, minor, adverse* impact** to wildlife and wildlife habitat	**Overall Impact** Overall impact would be ***park-wide, short-term, minor, adverse impact*** to wildlife and wildlife habitat
	Cumulative Impact Cumulative effects would be park-wide, short-term, minor and adverse.	**Cumulative Impact** Cumulative Impact would be park-wide, short-term, minor and adverse.	**Cumulative Impact** Cumulative Impact would be park-wide, short-term, minor and adverse.	**Cumulative Impact** Cumulative Impact would be park-wide, short-term, minor and adverse.
Rare, Threatened, and Endangered Species	Existing habitat would remain in place and continue to support populations of birds, mammals, reptiles and fish that currently inhabit the site and the water resources on the site. Quality of the water is most important to the identified species of fish, the Arkansas darter, as a candidate for federal listing and a species of concern in Missouri.	Implementing construction, restoration of grove and orchard, removal of invasive species, expanded woodland management, and stream, spring and pond management would result in potential impacts due to displacement of vegetation along stream corridors and subsequent effects on water quality. Use of BMPs would be implemented.	Implementing construction, restoration of grove and orchard, removal of invasive species, expanded woodland management, and stream, spring and pond management would result in potential impacts due to displacement of vegetation along stream corridors and subsequent effects on water quality. Use of BMPs would be implemented.	Implementing construction, restoration of grove and orchard, removal of invasive species, expanded woodland management, and stream, spring and pond management would result in potential impacts due to displacement of vegetation along stream corridors and subsequent effects on water quality. Use of BMPs would be implemented.
	Overall Impact Overall impact would be ***local, long-term, negligible, and adverse impact*** on rare, threatened and endangered species.	**Overall Impact** Overall impact would be ***local, short-term, minor, adverse impact*** to rare threatened and endangered species	**Overall Impact** Overall impact would be ***local, short-term, minor, adverse impact*** to rare threatened and endangered species	**Overall Impact** Overall impact would be ***local, short-term, minor, adverse impact*** to rare threatened and endangered species
	Cumulative Impact Cumulative effects would be local, short-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be local, short-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be local, short-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be local, short-term, minor and adverse.

Wetlands	No change to current conditions. Wetland areas will remain within prairie management units and managed for preservation of unique wetland vegetation.	Wetland areas will remain within prairie management units and managed for preservation of unique wetland vegetation.	Wetland areas will remain within prairie management units and managed for preservation of unique wetland vegetation.	Wetland areas will remain within prairie management units and managed for preservation of unique wetland vegetation. Mown hayfield management in Unit 6
	Overall Impact Overall impact would be a ***local, short term, and negligible adverse impact*** on wetlands.	**Overall Impact** Overall impact would be ***local, short-term, and negligible adverse impact*** wetlands	**Overall Impact** Overall impact would be ***local, short-term, and negligible adverse impact*** on wetlands	**Overall Impact** Overall impact would be ***local, short-term, and minor adverse impact*** on wetlands
	Cumulative Impact Cumulative effects would be local, short-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be local, short-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be local, short-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be local, short-term, minor and adverse.
Floodplains	Protection of floodplains will continue with the current management and maintenance strategies in place. The Williams Pond would remain in its current configuration. Maintenance of existing water systems and features would continue as well as protection of water resources.	In Alternative 2 there would be stream bank restoration and management of corridor woodlands along the streams and into the floodplain. Maintenance of existing water systems and features would continue as well as protection of water resources.	In Alternative 3, there would be stream bank restoration and management of corridor woodlands along the streams and into the floodplain. Maintenance of existing water systems and features would continue as well as protection of water resources.	In Alternative 4, there would be stream bank restoration and management of corridor woodlands along the streams and into the floodplain. Maintenance of existing water systems and features would continue as well as protection of water resources.
	Overall Impact Overall impact would be ***local, long-term, minor, adverse impact*** on floodplains	**Overall Impact** Overall impact would be ***local, long-term, moderate and beneficial impact*** on floodplains	**Overall Impact** Overall impact would be ***local, long-term, moderate and beneficial impact*** on floodplains	**Overall Impact** Overall impact would be ***local, long-term, moderate and beneficial impact*** on floodplains
	Cumulative Impact Cumulative effects would be local, long-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be local, long-term, moderate and beneficial	**Cumulative Impact** Cumulative effects would be local, long-term, moderate and beneficial	**Cumulative Impact** Cumulative effects would be local, long-term, moderate and beneficial

Cultural Landscapes	Existing conditions focus on preservation of the existing character of the national monument landscape and current interpretive programs. No further exploration of ways to utilize the cultural landscape as a tool for interpreting Carver's life and accomplishment would be conducted.	Enhanced interpretation of the park by re-establishing and interpreting missing nineteenth century features. There also would be thinning and management of woodland and establishment of clear connection between Dr. Carver's life and achievements and the historic landscape of the farm.	There would be thinning and management of woodland and establishment of clear connection between Dr. Carver's life and work with plants. This alternative focuses on ethnobotanical plantings to connect the cultural landscape to the life and legacy of Dr. Carver.	Enhanced interpretation of the park by re-establishing and interpreting missing nineteenth century features. There also would be thinning and management of woodland and establishment of clear connection between Dr. Carver's life and achievements and the historic landscape of the farm.
	Overall Impact Overall impact would be ***park-wide, long-term, minor, and adverse impacts*** on cultural landscapes	**Overall Impact** Overall impact would be ***park-wide, long-term, and major beneficial impact*** on the cultural landscape For purposes of 106 compliance there would be ***no adverse effect.***	**Overall Impact** Overall impact would be ***park-wide, long-term, and moderate beneficial impact*** on the cultural landscape. For purposes of 106 compliance there would be ***no adverse effect.***	**Overall Impact** Overall impact would be ***park-wide, long-term, and major beneficial impact*** on the cultural landscape. For purposes of 106 compliance there would be ***no adverse effect.***
	Cumulative Impact Cumulative effects would be local, short-term, negligible and adverse.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, major and beneficial	**Cumulative Impact** Cumulative effects would be park-wide, long-term, moderate and beneficial	**Cumulative Impact** Cumulative effects would be park-wide, long-term, major and beneficial
Historic Buildings and Structures	Existing conditions and management focus on preservation of the Moses Carver house and the family cemetery perimeter wall. Also the preservation of the stone boundary markers on the west corners of the national monument site.	These buildings and structures are preserved, managed, and maintained with enhanced interpretation. It also includes repair and restoration of the family cemetery perimeter wall.	These buildings and structures are preserved, managed, and maintained with enhanced interpretation. It also includes repair and restoration of the family cemetery perimeter wall.	These buildings and structures are preserved, managed, and maintained with enhanced interpretation. It also includes repair and restoration of the family cemetery perimeter wall.
	Overall Impact Overall impact would be ***local, long-term, negligible, adverse impact*** on historic buildings and structures.	**Overall Impact** Overall impact would be ***local, long-term, moderate, and beneficial impact*** on historic buildings and structures. For purposes of 106 compliance there would be ***no adverse effect.***	**Overall Impact** Overall impact would be ***local, long-term, moderate, and beneficial impact*** on historic buildings and structures. For purposes of 106 compliance there would be ***no adverse effect.***	**Overall Impact** Overall impact would be ***local, long-term, moderate, and beneficial impact*** on historic buildings and structures. For purposes of 106 compliance there would be ***no adverse effect.***

	Cumulative Impact Cumulative effects would be local, short-term, negligible and adverse.	**Cumulative Impact** Cumulative effects would be local, long-term, moderate and beneficial.	**Cumulative Impact** Cumulative effects would be local, long-term, moderate and beneficial.	**Cumulative Impact** Cumulative effects would be local, long-term, moderate and beneficial.
Archeological Resources	There would be no new ground-disturbing activities that would potentially affect archeological resources. Current levels of maintenance and repairs to historic features would continue. These activities do not typically include excavation. Current management practices would continue and there would be no new impacts to archeological resources.	Alternative 2 would include some excavation for trail expansion, removal and thinning of woodlands, and installation of new plantings. There would be ground disturbance during demolition of former residences and development of overflow parking. Mitigation measures would be in place	Alternative 3 would include some excavation for trail expansion, removal and thinning of woodlands, and installation of new plantings. There would be ground disturbance during demolition of former residences and development of overflow parking. Mitigation measures would be in place	Alternative 4 would include some excavation for trail expansion, removal and thinning of woodlands, and installation of new plantings. There would be ground disturbance during demolition of former residences and development of overflow parking. Mitigation measures would be in place
	Overall Impact Overall impact would be ***park-wide, long-term, and negligible adverse impacts*** to archeological resources.	**Overall Impact** Overall impact would be ***local, short-term, and minor adverse impacts*** on archeological resources. For purposes of Section 106 compliance there would be **no adverse effect.**	**Overall Impact** Overall impact would be ***local, short-term, and minor adverse impacts*** on archeological resources. For purposes of Section 106 compliance there would be **no adverse effect.**	**Overall Impact** Overall impact would be ***local, short-term, and minor adverse impacts*** on archeological resources. For purposes of Section 106 compliance there would be **no adverse effect.**
	Cumulative Impact Cumulative effects would be park-wide, long-term, negligible and adverse.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, minor and adverse with mitigation measures in place	**Cumulative Impact** Cumulative effects would be park-wide, long-term, minor and adverse with mitigation measures in place	**Cumulative Impact** Cumulative effects would be park-wide, long-term, minor and adverse with mitigation measures in place

Visitor Use and Experience	No change to current conditions, facilities, or interpretation. Under this alternative, there would be no changes to the facilities that currently accommodate visitor access and interpretation or to park administration/maintenance facilities. No new construction of visitor amenities. No expansion of interpretation using the cultural landscape to tell the complete story of the life and legacy of Dr. Carver	Expansion of the trail for interpretive opportunities; identification of location of former Moses Carver farmstead features and associated interpretation; accurate location through archeology of the birthplace cabin and original location of the Moses Carver house and associated interpretation.	Ethnobotanical plantings would be installed to enhance interpretation of Dr. Carver's entire life and work. Expansion of the trail to provide interpreted ethnobotanical plantings and an interpreted environmental trial through Harkins Woods.	Expansion of the trail for interpretive opportunities; identification of location of former Moses Carver farmstead features and associated interpretation; accurate location through archeology of the birthplace cabin and original location of the Moses Carver house and associated interpretation.
	Overall Impact Overall impact would be a ***park-wide, long term, and minor adverse impact*** on visitor experience.	**Overall Impact** Overall impact would be a ***park-wide, long term, and major beneficial impact*** on visitor use and experience.	**Overall Impact** Overall impact would be a ***park-wide, long term, and moderate beneficial impact*** on visitor use and experience.	**Overall Impact** Overall impact would be a ***park-wide, long term, and major beneficial impact*** on visitor use and experience.
	Cumulative Impact Cumulative effects would be park-wide, short-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, major and beneficial.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, moderate and beneficial.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, major and beneficial.
Park Operations	Park operations would remain consistent with those currently being undertaken. There would be no change in current site operations or infrastructure. The visitor center would continue to be the primary point of visitor contact. Maintenance requirements would continue at current levels.	Alternative 2 would require expanded park operations due to enhanced interpretation of the park to tell the story of George Washington Carver's life and interpreting missing nineteenth century features. There would also be thinning and management of woodlands, and mown hay viewsheds.	Alternative 3 would require expanded park operations. Plants would be installed along trails to enhance interpretation, thinning and clearing of woodland would occur to allow for plantings of ethnobotanical species.	Alternative 4 would require expanded park operations due to enhanced interpretation of the park to tell the story of George Washington Carver's life and interpreting missing nineteenth century features. There would also be thinning and management of woodlands, and mown hay fields in units 2, 6, and 7.
	Overall Impact Overall impact would be ***park-wide, short-term, and negligible adverse impact*** on park operations	**Overall Impact** Overall impact would be ***park-wide, long-term, and moderate adverse impact*** to park operations	**Overall Impact** Overall impact would be ***park-wide, long-term, and moderate adverse impact*** to park operations	**Overall Impact** Overall impact would be ***park-wide, long-term, and moderate adverse impact*** to park operations

	Cumulative Impact Cumulative effects would be park-wide, short-term, minor and adverse.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, moderate and adverse.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, moderate and adverse.	**Cumulative Impact** Cumulative effects would be park-wide, long-term, moderate and adverse.

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

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

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

6.2 Cumulative Impacts

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

Methods for Assessing Cumulative Impacts

Cumulative impacts were determined by combining the impacts of each action alternative and the no action alternative with other past, present, and reasonable foreseeable future actions. Past actions include activities that influenced and affected the current conditions of the environment near the project area. Ongoing or reasonably foreseeable future project near the park or the surrounding region might contribute to cumulative impacts. The geographic scope of the analysis includes actions in the project area as well as other actions in the park or surrounding lands, where overlapping resource impacts are possible. The temporal scope includes actions within a range of approximately 10 years. Once identified, past, present, and reasonably foreseeable actions were then assessed in conjunction with the impacts of the alternatives to determine if they would have any added adverse or beneficial effects on a particular resource, park operation or visitor use. The impacts of past, present, and reasonably foreseeable actions vary for each resource. Cumulative impacts are considered for each alternative and are presented in the environmental consequences discussion for each impact topic.

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

- Past, present and ongoing prairie restoration projects and prescribed burns;
- Future projects associated with accessibility compliance as stipulated in the *George Washington Carver National Monument Accessibility Assessment;*
- Projects associated with turf management in specified areas of the monument;
- Projects associated with expanded interpretation;
- Projects associated with future management of woodlands;
- Ongoing and future archeological investigations; and
- Projects associated with the demolition of the former housing buildings near the 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

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

Cumulative Impacts

Past, present, and reasonably foreseeable future actions would have local, short-term, minor and adverse impacts on soils. Some of these actions include: routine utility repair, replacement, and new installation; small scale construction and excavation for fulfillment of accessibility requirements across the park; and present and future management and maintenance strategies for turf, prairie restoration, and conservation and management of the streams and Williams Pond. The overall cumulative impacts to soils from the "No Action" alternative in combination with the past, present, and reasonably foreseeable future actions would be park-wide, short-term, minor and adverse.

Conclusions

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

Impacts of Elements Common to the Action Alternatives on Soils

The following proposed actions would impact soils 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
- Expansion of the trail system to enhance interpretation of the entire site
- Provision of universal accessibility to all buildings and structures as well as features associated with the primary interpretive experience, following the guidelines set forth in the *George Washington Carver National Monument: Accessibility Debriefing Report and Final Report* (NPS 2014)
- Stabilization, maintenance, and considered restoration of the Carver family cemetery wall to reflect intended squared off stone stacking methods and the original eastern opening for access

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

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

As part of an overall strategy for managing the cultural landscape of the park, this alternative recommends developing additional connections between interpretive programming and what is known about the landscape that comprised the Moses Carver farm during George Washington Carver's time on the property. Specific actions resulting from the implementation of this alternative include: clearing of woodlands not present during the Carver period; thinning and management of bottomland woodlands to depict the historic savanna-like character; expansion of the Carver Trail; and the addition of foundation outlines and waysides to interpret former Moses Carver farm features. Tree removal is anticipated to lead to soil disturbance and erosion, particularly in clearing of woodland and management of bottomland. Once new savanna-like conditions are established, soil erosion and disturbance would be abated. This alternative would have a ***local, short-term, moderate adverse impact*** on soils.

Cumulative Impacts

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

Conclusion

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

Impacts of Treatment Alternative 3 (Interpretation and Celebration of the Life and Work of George Washington Carver Using an Ethnobotanical Approach) on Soils

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

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

Cumulative Impacts

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

Conclusion

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

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

This rehabilitation treatment alternative focuses on the interpretation of several features known to have been present on the Moses Carver farm during George Washington Carver's boyhood that are no longer present to convey the scale, arrangement, orientation and elements of the historic farmstead. These include field and pasture patterns of agricultural production, walnut hedgerows, the fruit and nut orchard, and a persimmon grove, as well as the farm area which would be addressed in part through physical means such as foundation outlines and mow patterns. Specific actions resulting from the implementation of this alternative are anticipated to include plantings of an orchard and persimmon grove, planting along trails and roads, and expanding the trail system. Tree removal is anticipated to lead to soil disturbance and erosion, particularly in clearing of woodland. Some localized erosion could also take place during the process of introducing a large number of new plant materials to the landscape at the monument. Once new conditions are established and new plantings are stabilized, soil erosion and disturbance would be abated. This alternative would have a ***local, short-term, and moderate adverse impact*** on soils.

Cumulative Impacts

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

Conclusion

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

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	**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. **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.
Moderate	**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. **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.
Major	**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. **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.

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

The grassland and forest vegetation identified within the current boundaries of George Washington Carver National Monument, are part of the existing landcover character and patterns. Under Alternative 1 (No Action) the current landscape patterns of spatial organization, composed of a developed subzone featuring ornamental plantings, shade trees, and turf, riparian woodlands along the stream corridors, and restored grassland prairie will be perpetuated. No further site clearing would be undertaken and current mowing and vegetation management regimens would continue. The park will continue to utilize seeding, planting, mowing, haying, and prescribed burning to maintain and restore the prairie. Treatment would focus on maintenance of existing landcover character and patterns, conservation of natural resources, and continuation of current prairie restoration strategies. Comprehensive woodland management and removal of invasive species management strategies addressed in studies by Heartland Network are not currently integrated into the current vegetation management programs or strategies. Under this alternative, woodland management is not addressed and there is no strategic comprehensive program for the removal of invasive species. Overall this alternative would have ***park-wide, long-term, minor, adverse impact*** on grassland prairie, and ***local, long-term, moderate, adverse impact*** on woodland vegetation.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions would have local, short-term, and minor adverse impacts on the grassland and woodland vegetation at George Washington Carver National Monument. Some of these actions include: routine utility repair, replacement, and new installation; small scale construction and excavation for fulfillment of accessibility requirements across the park; and present and future management and maintenance strategies for turf, prairie restoration, and conservation and management of the streams and Williams Pond. The overall cumulative impacts to grassland and woodland vegetation from the "No Action" alternative in combination with the past, present, and reasonably foreseeable future actions would be park-wide, short-term, minor to moderate and adverse.

Conclusions

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

Impacts of Elements Common to the Action Alternatives on Vegetation

The following proposed actions would impact vegetation 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

- Expansion of the trail system to enhance interpretation of the entire site

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

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

Implementing some proposed construction or management strategies, or the undertaking of the restoration of the persimmon grove would result in *local, short-term, minor to moderate, adverse impacts* to woodland vegetation during implementation. Continued natural resource management of restored grassland prairie for health, diversity, and soil and water conservation and management of woodlands to remove invasive species and other expanded natural and cultural resource preservation, management, and maintenance strategies would result in *park-wide, long-term , minor to moderate, beneficial impacts* to vegetation.

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

Comprehensive woodland management and removal of invasive species management strategies as well as prairie manage strategies addressed in studies by Heartland Network will be integrated into the current vegetation management procedures, expansion, and programs. Implementing some proposed construction or vegetation management strategies, or the undertaking of the restoration of the persimmon grove and orchard would result in potential impacts on grassland and woodland vegetation. Continued natural resource management of restored grassland prairie for health, diversity, and soil and water conservation and management of woodlands to remove invasive species and other expanded natural and cultural resource preservation, management, and maintenance strategies would also result in potential impacts to both grasslands and woodlands.

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

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

Cumulative Impacts

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

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

Conclusion

Treatment Alternative 2 would have park-wide, short-term and moderate adverse impacts and park-wide, long-term, moderate and beneficial impacts to grassland and woodland vegetation from construction of new interpretive features, enhanced interpretation, trail expansion, restoration of stream banks, management strategies for Williams Pond and the springs and streams, and management of the woodland corridors surrounding the streams. Beneficial impacts would be due to continued natural resource management of restored grassland prairie for health, diversity, and soil and water conservation and management of woodlands to remove invasive species and other expanded natural and cultural resource preservation, management, and maintenance strategies. Cumulative effects would be park-wide, long-term, moderate and adverse to moderate and beneficial.

Impacts of Treatment Alternative 3 (Interpretation and Celebration of the Life and Work of George Washington Carver Using an Ethnobotanical Approach) on Vegetation

Comprehensive woodland management and removal of invasive species management strategies as well as prairie manage strategies addressed in studies by Heartland Network will be integrated into the current vegetation management procedures, expansion, and programs. Implementing some proposed construction or vegetation management strategies, or the undertaking of the restoration of the persimmon grove and orchard would result in potential impacts on grassland and woodland vegetation. Continued natural resource management of restored grassland prairie for health, diversity, and soil and water conservation and management of woodlands to remove invasive species and other expanded natural and cultural resource preservation, management, and maintenance strategies would also result in potential impacts to both grasslands and woodlands.

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

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

Cumulative Impacts

Past, present and reasonably foreseeable future actions are described under "Cumulative Impacts for Alternative 1 (No Action)." The overall cumulative impacts to Vegetation from Alternative 3 in combination with past, present, and reasonably foreseeable future actions would be park-wide, long-term, minor and adverse during implementation and park-wide, long-term, minor and beneficial once established.

Conclusion

Treatment Alternative 3 would have park-wide, short-term and minor adverse impacts and park-wide, long-term, minor and beneficial impacts to grassland and woodland vegetation from construction of new interpretive features, enhanced interpretation, trail expansion, restoration of stream banks, management strategies for Williams Pond and the springs and streams, and management of the woodland corridors surrounding the streams. Beneficial impacts would be due to continued natural resource management of restored grassland prairie for health, diversity, and soil and water conservation and management of woodlands to remove invasive species and other expanded natural and cultural resource preservation, management, and maintenance strategies. Cumulative effects would be park-wide, long-term, minor and adverse to minor and beneficial.

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

Comprehensive woodland management and removal of invasive species management strategies as well as prairie manage strategies addressed in studies by Harrington (1999), Burfield (2011), and Heartland Network will be integrated into the current vegetation management procedures, expansion, and programs. Implementing some proposed construction or vegetation management strategies, or the undertaking of the restoration of the persimmon grove and orchard would result in potential impacts on grassland and woodland vegetation. Continued natural resource management of restored grassland prairie for health, diversity, and soil and water conservation and management of woodlands to remove invasive species and other expanded natural and cultural resource preservation, management, and maintenance strategies would also result in potential impacts to both grasslands and woodlands.

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

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

Cumulative Impacts

Past, present and reasonably foreseeable future actions are described under "Cumulative Impacts for Alternative 1 (No Action)." The overall cumulative impacts to Vegetation from Alternative 4 in combination with past, present, and reasonably foreseeable future actions would be park-wide, long-term, moderate and adverse during implementation and park-wide, long-term, moderate and beneficial once established.

Conclusion

Treatment Alternative 4 would have park-wide, short-term and moderate adverse impacts and park-wide, long-term, moderate and beneficial impacts to grassland and woodland vegetation from construction of new interpretive features, enhanced interpretation, trail expansion, restoration of stream banks, management strategies for Williams Pond and the springs and streams, and management of the woodland corridors surrounding the streams. Beneficial impacts would be due to continued natural resource management of restored grassland prairie for health, diversity, and soil and water conservation and management of woodlands to remove invasive species and other expanded natural and cultural resource preservation, management, and maintenance strategies. Cumulative effects would be park-wide, long-term, moderate and adverse to moderate and beneficial.

6.4.3 Water Quality

Impact Intensity Threshold

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

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

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

Table 6-3. Water Quality Impact and 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.

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

There are three streams that flow through George Washington Carver National Monument and two spring branches that are completely contained within the park. Carver Branch, Harkins Branch, and Williams Branch are all tributaries of Shoal Creek. Williams Spring is currently inundated by Williams Pond. Carver Springs consists of a very short spring branch that flows into Carver Branch. Stream condition in the national monument is generally good. Protection of surface water and ground water is a management priority and currently water quality meets or exceeds all applicable water quality standards. NPS and NPS-permitted programs and facilities are currently maintained and operated to avoid pollution of surface water and groundwater. Under this alternative, this protection will continue with the current management and maintenance strategies in place. The current landscape patterns of spatial organization composed in part by riparian woodlands along stream corridors, will also be perpetuated. The Williams Pond would remain in its current configuration. Maintenance of existing water systems and features would continue as well as protection of water resources. Under this alternative, strategy for the maintenance and management of the stream banks or any expanded management or maintenance for Williams Pond would not be in place. Overall this alternative would have ***park-wide, long-term, negligible, adverse impact*** on water quality.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions would have local, short-term, and minor adverse impacts on water quality. Some of these actions include: routine utility repair, replacement, and new installation; small scale construction and excavation for fulfillment of accessibility requirements across the park; and present and future management and maintenance strategies for turf, prairie restoration, and conservation and management of the streams and Williams Pond. The overall cumulative impacts to water quality from the "No Action" alternative in combination with the past, present, and reasonably foreseeable future actions would be local, short-term, minor and adverse.

Conclusions

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

Impacts of Elements Common to the Action Alternatives on Water Quality

The following proposed actions would impact water quality 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
- Expansion of the trail system to enhance interpretation of the entire site
- Provision of universal accessibility to all buildings and structures as well as features associated with the primary interpretive experience, following the guidelines set forth in the *George Washington Carver National Monument: Accessibility Debriefing Report and Final Report* (NPS 2014)
- Stabilization, maintenance, and considered restoration of the Carver family cemetery wall to reflect intended squared off stone stacking methods and the original eastern opening for access

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

Impacts of Treatment Alternative 2 (Rehabilitation of the Landscape, including Limited Restoration, For Interpretation to Memorialize the Life and Achievements of George Washington Carver on Water Quality

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

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

Cumulative Impacts

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

Conclusion

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

Impacts of Treatment Alternative 3 (Interpretation and Celebration of the Life and Work of George Washington Carver Using an Ethnobotanical Approach) on Water Quality

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

Cumulative Impacts

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

Conclusion

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

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

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

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

Cumulative Impacts

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

Conclusion

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

6.4.4 Wildlife and Wildlife Habitat

Impact Intensity Threshold

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

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

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

Table 6-4. Wildlife and Wildlife Habitat 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.

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

Under this Alternative 1 (No Action), there would be little change in the George Washington Carver National Monument character and management. Existing habitat would remain in place to continue to support populations of birds, mammals, and reptiles that currently use the site. There would be no changes to vegetation or new construction projects to jeopardize the important habitats on the site. Invasive plant stands are expected to increase, diminishing slightly the diversity of the plant community and thereby potential wildlife habitat. Over time, the existing successional woodland would continue to mature, and may provide additional habitat for some species of interest. This alternative would have a ***park-wide, long-term, minor, adverse impact*** on wildlife and wildlife habitat.

Cumulative Impacts

Past, present, and reasonably foreseeable future actions would have local, short-term, and minor adverse impacts on Wildlife and Wildlife Habitat. Some of these actions include: routine utility repair, replacement, and new installation; small scale construction and excavation for fulfillment of accessibility requirements across the park; and present and future management and maintenance strategies for turf, prairie restoration, and conservation and management of the streams and Williams Pond. The overall cumulative impacts to Wildlife and Wildlife Habitat from the "No Action" alternative in combination with the past, present, and reasonably foreseeable future actions would be park-wide, short-term, minor and adverse.

Conclusions

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

Impacts of Elements Common to the Action Alternatives on Wildlife and Wildlife Habitat

The following proposed actions would impact wildlife and wildlife habitat 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

- Expansion of the trail system to enhance interpretation of the entire site

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

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

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

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

Impacts of Treatment Alternative 2 (Rehabilitation of the Landscape, including Limited Restoration, For Interpretation to Memorialize the Life and Achievements of George Washington Carver on Wildlife and Wildlife Habitat

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

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

Cumulative Impacts

Past, present and reasonably foreseeable future actions are described under "Cumulative Impacts for Alternative 1 (No Action)." The overall cumulative impacts to Wildlife and Wildlife Habitat from Alternative 2 in combination with past, present, and reasonably foreseeable future actions would be park-wide, short-term, minor and adverse.

Conclusion

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

Impacts of Treatment Alternative 3 (Interpretation and Celebration of the Life and Work of George Washington Carver Using an Ethnobotanical Approach) on Wildlife and Wildlife Habitat

Changes in land cover, land use, management practices, and the amount of impervious surface that would occur in association with the proposed alternatives have been considered for their potential to impact wildlife and wildlife habitat at the national monument. Implementing construction of overflow parking, restoration of the persimmon grove, expansion of the trail system, and clearing or thinning of woodlands for installation of ethnobotanical plantings would impact wildlife and habitat due to short-term displacement of vegetation and expanded woodland management strategies. Use of best management practices (BMPs) would be implemented during construction and other soil disturbing activities such as tree removal, to minimize impacts to wildlife habitat. Alternative 3 would result in **park-wide, short-term, and minor adverse impacts** to Wildlife and Wildlife Habitat.

Cumulative Impacts

Past, present and reasonably foreseeable future actions are described under "Cumulative Impacts for Alternative 1 (No Action)." The overall cumulative impacts to Wildlife and Wildlife Habitat from Alternative 3 in combination with past, present, and reasonably foreseeable future actions would be park-wide, short-term, minor and adverse.

Conclusion

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

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

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

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

Cumulative Impacts

Past, present and reasonably foreseeable future actions are described under "Cumulative Impacts for Alternative 1 (No Action)." The overall cumulative impacts to Wildlife and Wildlife Habitat from Alternative 4 in combination with past, present, and reasonably foreseeable future actions would be park-wide, short-term, minor and adverse.

Conclusion

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

6.4.5 Rare, Threatened, and Endangered Species

Impact Intensity Thresholds

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

Impact analysis for rare, threatened and endangered species was based on informal consultation with U.S. Fish and Wildlife Service and previous studies completed for the park. Changes in land cover, land use, vegetation management practices, and the amount of impervious surface that would occur in association with the proposed alternatives have been considered for their potential to impact candidates for Federal listing and also species of concern. The thresholds of change for the intensity of an impact on rare, threatened and endangered species are defined as follows in Table 6-5.

Table 6-5. Rare, Threatened, and 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.

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

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

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

Cumulative Impacts

Past, present, and reasonably foreseeable future actions would have local, short-term, and minor adverse impacts on Rare, Threatened and Endangered Species. Some of these actions include: routine utility repair, replacement, and new installation; small scale construction and excavation for fulfillment of accessibility requirements across the park; and present and future management and maintenance strategies for turf, prairie restoration, and conservation and management of the streams and Williams Pond. The overall cumulative impacts to Rare, Threatened and Endangered Species from the "No Action" alternative in combination with the past, present, and reasonably foreseeable future actions would be local, short-term, minor and adverse.

Conclusions

The No Action Alternative would have local, long-term, negligible adverse impacts on Rare, Threatened, and Endangered Species. Cumulative effects would be local, short-term, minor and adverse.

Impacts of Elements Common to the Action Alternatives on Rare, Threatened, and Endangered Species

The following proposed actions would impact rare, threatened, and endangered species 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
- Expansion of the trail system to enhance interpretation of the entire site
- Provision of universal accessibility to all buildings and structures as well as features associated with the primary interpretive experience, following the guidelines set forth in the *George Washington Carver National Monument: Accessibility Debriefing Report and Final Report* (NPS 2014)
- Stabilization, maintenance, and considered restoration of the Carver family cemetery wall to reflect intended squared off stone stacking methods and the original eastern opening for access

Implementing construction of overflow parking, restoration of the persimmon grove, removal of invasive species, and expansion of the trail system would result in *local, short-term, minor, adverse impacts to rare, threatened and endangered species,* because some vegetation including invasive species in stream corridors would be displaced, exposed or disturbed. Use of best management practices (BMPs) would be implemented during construction and other soil disturbing activities such as tree and vegetation removal, to minimize impacts to water and terrestrial habitats of rare, threatened, and endangered species. *Long term, moderate, beneficial, impacts* to rare, threatened, and endangered species would occur with the implementation of the preservation, management and maintenance strategies for conservation land use, wet prairie areas, water resources, and restoration of the grassland prairie.

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

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

Cumulative Impacts

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

Conclusion

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

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

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

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

Cumulative Impacts

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

Conclusion

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

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

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

Cumulative Impacts

Past, present and reasonably foreseeable future actions are described under "Cumulative Impacts for Alternative 1 (No Action)." The overall

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

Conclusion

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

6.4.6 Wetlands

Impact Intensity Threshold

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

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

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.

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

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

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

Cumulative Impacts

Past, present, and reasonably foreseeable future actions would have local, short-term, and minor adverse impacts on wetlands. Some of these actions include: routine utility repair, replacement, and new installation; small scale construction and excavation for fulfillment of accessibility requirements across the park; and present and future management and maintenance strategies for turf, prairie restoration, and conservation and management of the streams and Williams Pond. The overall cumulative impacts to wetlands from the "No Action" alternative in combination with the past, present, and reasonably foreseeable future actions would be local, short-term, minor and adverse.

Conclusions

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

Impacts of Elements Common to the Action Alternatives on Wetlands

The following proposed actions would impact wetlands 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
- Expansion of the trail system to enhance interpretation of the entire site
- Provision of universal accessibility to all buildings and structures as well as features associated with the primary interpretive experience, following the guidelines set forth in the *George Washington Carver National Monument: Accessibility Debriefing Report and Final Report* (NPS 2014)

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

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

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

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

Cumulative Impacts

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

Conclusion

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

Impacts of Treatment Alternative 3 (Interpretation and Celebration of the Life and Work of George Washington Carver Using an Ethnobotanical Approach) on Wetlands

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

Cumulative Impacts

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

Conclusion

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

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

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

Cumulative Impacts

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

Conclusion

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

6.4.7 Floodplains

Impact Intensity Threshold

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

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

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.

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

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

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

Cumulative Impacts

Past, present, and reasonably foreseeable future actions would have local, short-term, and minor adverse impacts on floodplains. Some of these actions include: routine utility repair, replacement, and new installation; small scale construction and excavation for fulfillment of accessibility requirements across the park; and present and future management and maintenance strategies for turf, prairie restoration, and conservation and management of the streams and Williams Pond. The overall cumulative impacts to floodplains from the "No Action" alternative in combination with the past, present, and reasonably foreseeable future actions would be local, short-term, minor and adverse.

Conclusions

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

Impacts of Elements Common to the Action Alternatives on Floodplains

The following proposed actions would impact floodplains 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
- Expansion of the trail system to enhance interpretation of the entire site
- Provision of universal accessibility to all buildings and structures as well as features associated with the primary interpretive experience, following the guidelines set forth in the *George Washington Carver National Monument: Accessibility Debriefing Report and Final Report* (NPS 2014)
- Stabilization, maintenance, and considered restoration of the Carver family cemetery wall to reflect intended squared off stone stacking methods and the original eastern opening for access

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

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

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

Cumulative Impacts

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

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

Conclusion

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

Impacts of Treatment Alternative 3 (Interpretation and Celebration of the Life and Work of George Washington Carver Using an Ethnobotanical Approach) on Floodplains

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

Cumulative Impacts

Past, present and reasonably foreseeable future actions are described under "Cumulative Impacts for Alternative 1 (No Action)." The overall cumulative impacts to Floodplains from Alternative 3 in combination with past, present, and reasonably foreseeable future actions would be local, long-term, moderate and beneficial.

Conclusion

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

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

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

Cumulative Impacts

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

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

Conclusion

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

6.5 Cultural Resources

6.5.1 Cultural Landscapes

Impact Intensity Threshold

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

Table 6-8. Cultural Landscapes 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	Alternation 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).

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

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

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 cultural landscapes. Some of these actions include: continued prairie restoration and stabilization; small scale construction and excavation for fulfillment of accessibility requirements across the park; future preservation and interpretation management and changes, and conservation and management of the streams and Williams Pond. The overall cumulative impacts to cultural landscapes 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 park-wide, long-term, minor, adverse impacts on cultural landscapes. Cumulative effects would be local, short-term, negligible and adverse.

Impacts of Elements Common to the Action Alternatives on Cultural Landscapes

The following proposed actions would impact cultural landscapes 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

- Expansion of the trail system to enhance interpretation of the entire site

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

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

Implementation of rehabilitation and management strategies for land use, historic features, and integration of the cultural landscape with park-wide interpretation would be a *park-wide, long-term, major beneficial impact* on the cultural landscape. Actions common to the alternatives 2, 3, and 4 fall under the comprehensive treatment approach of rehabilitation. Under the rehabilitation treatment, stabilization, protection, and preservation of historic and natural resources are actions that must occur in order to allow for the limited accommodation of new uses.

Impacts of Treatment Alternative 2 (Rehabilitation of the Landscape, including Limited Restoration, For Interpretation to Memorialize the Life and Achievements of George Washington Carver on Cultural Landscapes

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

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

Cumulative Impacts

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

Conclusion

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

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

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

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

Cumulative Impacts

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

Conclusion

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

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

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

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

Cumulative Impacts

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

Conclusion

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

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

6.5.2 Historic Buildings and Structures

Impact Intensity Threshold

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

Table 6-9. Historic Buildings and Structures 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).

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

Alternative 1, the No Action Alternative focuses on preservation of the existing character of the George Washington Carver National Monument landscape and current interpretive programs. Visitors would continue to gain the majority of their knowledge of the life and accomplishments of Dr. Carver through the exhibits located within 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

- Expansion of the trail system to enhance interpretation of the entire site

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

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

Implementation of construction projects such as provision for universal accessibility to the Moses Carver house and to the Carver family cemetery would be a *local, short-term, negligible adverse impact* on historic buildings and structures. Implementation of rehabilitation and management strategies for land use, historic features, and integration of historic structures and buildings with park-wide interpretation would be a *park-wide, long-term, major beneficial impact* on historic buildings and structures. Actions common to alternatives 2, 3, and 4 fall under the comprehensive treatment approach of rehabilitation. Under the rehabilitation treatment, stabilization, protection, and preservation of historic and natural resources are actions that must occur in order to allow for the limited accommodation of new uses.

Impacts of Treatment Alternative 2 (Rehabilitation of the Landscape, including Limited Restoration, For Interpretation to Memorialize the Life and Achievements of George Washington Carver on Historic Buildings and Structures

The historic buildings and structures identified in Chapters 3 and 4 of this document include the Moses Carver house, the Carver family cemetery perimeter wall and the stone boundary markers in the northwest and southwest corners of the George Washington Carver National Monument. In Alternative 2, these features are preserved, managed, and maintained, with enhanced interpretation. This alternative also includes interpretation of the accurate location of the birthplace cabin and Moses Carver homestead based on further research and investigation using foundation outlines and mow patterns. Alternative 2 would have **local, long-term, moderate, and beneficial 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 are described under "Cumulative Impacts for Alternative 1 (No Action)." The overall cumulative impacts to historic buildings and structures from Alternative 2 in combination with past, present, and reasonably foreseeable future actions would be local, long-term, moderate and beneficial.

Conclusion

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

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

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

long-term, moderate, and beneficial 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 are described under "Cumulative Impacts for Alternative 1 (No Action)." The overall cumulative impacts to historic buildings and structures from Alternative 3 in combination with past, present, and reasonably foreseeable future actions would be local, long-term, moderate and beneficial.

Conclusion

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

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

The historic buildings and structures identified in Chapters 3 and 4 of this document include the Moses Carver house, the Carver family cemetery perimeter wall and the stone boundary markers in the northwest and southwest corners of the George Washington Carver National Monument. In Alternative 4, these features are preserved, managed, and maintained, with enhanced interpretation. This alternative also includes interpretation of the accurate location of the birthplace cabin and Moses Carver homestead based on further research and investigation using foundation outlines and mow patterns. Alternative 4 would have **local, long-term, moderate, and beneficial 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 are described under "Cumulative Impacts for Alternative 1 (No Action)." The overall cumulative impacts to historic buildings and structures from Alternative 4 in combination with past, present, and reasonably foreseeable future actions would be local, long-term, moderate and beneficial.

Conclusion

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

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 archaeological field investigation. Accordingly, impacts on potential archaeological resources cannot be known beforehand. If an adverse effect on an archaeological 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	Alternation 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

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

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

For purposes of Section 106, 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 archeological resources. Some of these actions include: continued prairie restoration and stabilization; small scale construction and excavation for fulfillment of accessibility requirements across the park; future preservation and interpretation management and changes, and conservation and management of the streams and Williams Pond. The overall cumulative impacts to archeological resources 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 park-wide, long-term, negligible adverse impacts on archeological resources. Cumulative effects would be park-wide, long-term, negligible and adverse.

Impacts of Elements Common to the Action Alternatives on Archaeological Resources

The following proposed actions would impact archaeological resources 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
- Expansion of the trail system to enhance interpretation of the entire site
- Provision of universal accessibility to all buildings and structures as well as features associated with the primary interpretive experience, following the guidelines set forth in the *George Washington Carver National Monument: Accessibility Debriefing Report and Final Report* (NPS 2014)
- Stabilization, maintenance, and considered restoration of the Carver family cemetery wall to reflect intended squared off stone stacking methods and the original eastern opening for access

Rehabilitation of the national monument to accommodate visitors and to improve or expand features, may require implementation of construction projects to provide for universal accessibility to the Moses Carver house and existing trails, as well as the expansion of the trail system and some vegetation removal. These activities could potentially impact archeological resources if soil disturbance results in disruption of subsurface resources. The impacts would range from negligible to moderate adverse impacts depending on whether any currently unidentified archeological resources are discovered through implementation of the proposed actions. Prior to implementation of these actions, archeological investigation would have to be conducted and any ground disturbance monitored. There are archeological resources on the site so any construction/implementation strategies could have a *long-term, negligible to moderate, adverse impact* on potential archeological resources on the site. Proposed monitoring must be in place to reduce impacts to short-term, negligible, adverse impacts and for the purposes of Section 106, no adverse effect.

Impacts of Treatment Alternative 2 (Rehabilitation of the Landscape, including Limited Restoration, For Interpretation to Memorialize the Life and Achievements of George Washington Carver on Archaeological Resources

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

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

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

Cumulative Impacts

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

Conclusion

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

Impacts of Treatment Alternative 3 (Interpretation and Celebration of the Life and Work of George Washington Carver Using an Ethnobotanical Approach) on Archaeological Resources

Alternative 3 would include some excavation for trail expansion, removal and thinning of woodlands, and installation of new plantings. There would be ground disturbance during demolition of former residences and the subsequent development of the area for overflow parking. This would require installation of grass pavers to stabilize the soil and re-establish ground cover on the site. Archeological investigations are integral to this alternative and would determine additional information about the farm in support of restoration efforts. No known archeological sites would be disturbed in this alternative. To minimize potential adverse impacts, surveys would be conducted prior to ground-disturbing activities. Monitoring for subsurface artifacts would be conducted during ground-disturbing activities on the site. In the event that archeological resources are encountered, work would be stopped immediately and the park cultural resource specialist would be contacted. If necessary the SHPO and THPO would be consulted on potential adverse impacts and additional mitigation measures.

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

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

Cumulative Impacts

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

Conclusion

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

Impacts of Treatment Alternative 4 (Honor, Commemoration, and Interpretation of the Life and Legacy of George Washington Carver by Employment of a Combination of Agricultural Heritage and Exhibits of Plants Known to Dr. Carver) on Archeological Resources

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

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

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

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

Cumulative Impacts

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

Conclusion

Treatment Alternative 4 would have local, short-term and minor adverse impacts on archeological resources from various ground disturbances for woodland management, installation of new vegetation, and trail expansion. Cumulative effects would be park-wide, long-term, minor and adverse with mitigation measures in place.

6.6 Visual Resources

Impact Intensity Threshold

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

Table 6-11. Visual Resources Impact and 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.

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

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

Cumulative Impacts

Past, present, and reasonably foreseeable future actions would have local, short-term, and negligible adverse impacts on Visual Resources. Some of these actions include: routine utility repair, replacement, and new installation; small scale construction and excavation for fulfillment of accessibility requirements across the park; and present and future management and maintenance strategies for turf, prairie restoration, and conservation and management of the streams and Williams Pond. The overall cumulative impacts to Visitor Use and Experience 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 park-wide, long-term and negligible adverse impacts to Visual Resources. Cumulative effects would be park-wide, short-term, negligible and adverse.

Impacts of Elements Common to the Action Alternatives on Visual Resources

The following proposed actions would impact visual resources 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
- Preservation, management, and maintenance strategies for perpetuation of the views and viewsheds that contribute to the National Register significance of the park
- 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
- Expansion of the trail system to enhance interpretation of the entire site
- Provision of universal accessibility to all buildings and structures as well as features associated with the primary interpretive experience, following the guidelines set forth in the *George Washington Carver National Monument: Accessibility Debriefing Report and Final Report* (NPS 2014)
- Stabilization, maintenance, and considered restoration of the Carver family cemetery wall to reflect intended squared off stone stacking methods and the original eastern opening for access

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

Impacts of Treatment Alternative 2 (Rehabilitation of the Landscape, including Limited Restoration, For Interpretation to Memorialize the Life and Achievements of George Washington Carver on Visual Resources

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

Cumulative Impacts

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

Conclusion

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

Impacts of Treatment Alternative 3 (Interpretation and Celebration of the Life and Work of George Washington Carver Using an Ethnobotanical Approach) on Visual Resources

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

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

Cumulative Impacts

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

Conclusion

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

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

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

Cumulative Impacts

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

Conclusion

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

6.7 Visitor Use and Experience

Impact Intensity Threshold

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

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

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

Table 6-12. Visitor Use and Experience 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.

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

The no action alternative would preclude the park from meeting some of the goals identified for consideration as part of the CLR treatment plan in the Purpose and Need statement and the list of management issues such as expansion of visitor parking facilities to accommodate overflow needs, clarifications of inaccuracies, such as the current location of the birthplace cabin and the conversion of fescue fields associated with the former mine site to another landcover type. Nor further exploration of ways to utilize the cultural landscape as a tool for interpreting Carver's life and accomplishments would be conducted. This alternative would also limit the park in its ability to explain the historical context within which George Washington Carver grew up and his efforts to get an education and to rehabilitate the landscape and its associated structures to enhance the memorial nature of the site.

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

Cumulative Impacts

Past, present, and reasonably foreseeable future actions would have park-wide, short-term, and negligible beneficial impacts to Visitor Use and Experience. Some of these actions include: any increased interpretation or programming of events, future mowing requirements due to turf management strategies in place or other management strategies or interpretation associated with the prairie restoration. The overall cumulative impacts to Visitor Use and Experience from the "No Action" alternative in combination with the past, present, and reasonably foreseeable future actions would be park-wide, short-term, minor and adverse.

Conclusions

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

Impacts of Elements Common to the Action Alternatives on Visitor Use and Experience

The following proposed actions would impact visitor use and experience 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
- Preservation, management, and maintenance strategies for perpetuation of the views and viewsheds that contribute to the National Register significance of the park
- 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
- Expansion of the trail system to enhance interpretation of the entire site
- Provision of universal accessibility to all buildings and structures as well as features associated with the primary interpretive experience, following the guidelines set forth in the *George Washington Carver National Monument: Accessibility Debriefing Report and Final Report* (NPS 2014)
- Stabilization, maintenance, and considered restoration of the Carver family cemetery wall to reflect intended squared off stone stacking methods and the original eastern opening for access

Most of the actions common to alternatives 2, 3, and 4 such as: development of overflow parking area in the core developed area; preservation, maintenance and management of the cultural vegetation that contributes to the National Register significance of the park; expansion of the trail system to enhance interpretation of the entire site; and provision of universal accessibility to all buildings and structures as well as features associated with the primary interpretive experience would be a *park-wide, long-term, major beneficial impact* on the visitor experience. Actions common to the alternatives 2, 3, and 4 fall under the comprehensive treatment approach of rehabilitation. Under the rehabilitation treatment, stabilization, protection, and preservation of historic and natural resources are actions that must occur in order to allow for the limited accommodation of new uses and enhancement of the visitor experience.

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

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

Cumulative Impacts

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

Conclusion

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

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

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

Cumulative Impacts

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

Conclusion

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

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

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

Cumulative Impacts

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

Conclusion

Treatment Alternative 4 would have park-wide, long-term and major beneficial impacts on Visitor Use and Experience from installation of plantings known to Dr. Carver and interpretation of those plantings, trail expansion to include environmental interpretation in Harkins Woods, and delineation and interpretation of the former farmstead of Dr. Carver's childhood. Cumulative effects would be park-wide, long-term, major and beneficial.

6.8 Park Operations

Impact Intensity Threshold

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

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

Table 6-13. Park Operations Impact and 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.

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

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

Cumulative Impacts

Past, present, and reasonably foreseeable future actions would have park-wide, short-term, and minor adverse impacts Park Operations. Some of these actions include: any increased interpretation or programming of events, future mowing requirements due to turf management strategies in place or other management strategies associated with the prairie restoration. The overall cumulative impacts to Park Operations from the "No Action" alternative in combination with the past, present, and reasonably foreseeable future actions would be park-wide, short-term, minor and adverse.

Conclusions

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

Impacts of Elements Common to the Action Alternatives on Park Operations

The following proposed actions would impact park operations 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

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

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

Impacts of Treatment Alternative 2 (Rehabilitation of the Landscape, including Limited Restoration, For Interpretation to Memorialize the Life and Achievements of George Washington Carver on Park Operations

Alternative 2 would require expansion of park operations due to enhanced interpretation of the park to tell the story of George Washington Carver's experiences by re-establishing and interpreting missing nineteenth century features and lifeways. Features anticipated to include are a persimmon grove, walnut tree fence rows, fruit orchard, the farmstead area, the rural agricultural setting, and hayfields. There would be interpretation of the accurate location of the birthplace cabin and Moses Carver house and farmstead based on further research and investigation using foundation outlines and mow patterns. This alternative would also include thinning and management of woodland to depict historic savanna-like character. There would also be expanded operations due to mown hayfields in designed viewsheds in Alternative 2. These activities would improve the cultural landscape and establish a clear connection between Dr. Carver's life and achievements and the historic landscape of the farm, but increase the necessity for expanded park operations for landscape management and enhanced interpretation. Alternative 2 would have a **park-wide, long-term, and moderate adverse impact** on the Park Operations.

Cumulative Impacts

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

Conclusion

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

Impacts of Treatment Alternative 3 (Interpretation and Celebration of the Life and Work of George Washington Carver Using an Ethnobotanical Approach) on Park Operations

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

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

Cumulative Impacts

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

Conclusion

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

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

Alternative 4 would require expansion of park operations due to enhancement of the interpretive programming involving the nineteenth century Moses Carver farm known to George Washington Carver and enhanced environmental education opportunities involving trail expansion and justification for on-going prairie restoration activities to honor Dr. Carver's conservation work. This alternative focuses on interpretation of several features known to have been present on the farm during Carver's boyhood that are no longer present to convey the scale, arrangement, orientation and elements of the historic farmstead. There is also mowing of two prairie units to interpret the agrarian setting and managing riparian woodlands as gallery forests. This alternative also includes planting of a heritage fruit orchard and the persimmon grove to interpret one of the key features described by Dr. Carver from his childhood. Features included are a persimmon grove, walnut tree fence rows, fruit orchard, the farmstead area, the rural agricultural setting, and hayfields. There would be interpretation of the accurate location of the birthplace cabin and Moses Carver house and farmstead based on further research and investigation using foundation outlines and mow patterns. These activities would improve the cultural landscape and use it to interpret the entire life of George Washington Carver, but these actions will increase the necessity for expanded park operations for landscape management and enhanced interpretation. Alternative 4 would have a **park-wide, long-term, and moderate adverse impact** on the Park Operations.

Cumulative Impacts

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

Conclusion

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

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

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

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

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

7.2 Interagency Consultation and Coordination

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

7.3 List of Recipients of Letters of Notice and Invitation for the Stakeholder Meetings

- Mr. Charlie Scott, U. S. Fish and Wildlife Service
- Dr. James Jackson, Biology Department, Missouri Southern State University
- Dr. Luther Williams, Provost of Tuskegee Institute
- Dr. Charles Nilon, Department of Fisheries and Wildlife Sciences, University of Missouri
- Mr. Lynn Jenkins, District Conservationist, Natural Resources Conservation Service, U.S. Department of Agriculture
- Mr. Jerid Wilkinson, Conservation Agent, Missouri Department of Conservation

- Mr. Jeff Cantrell, Education Consultant, Missouri Department of Conservation
- Mr. Rick Horton, Fisheries Management Biologist, Missouri Department of Conservation
- Mr. Nate Forbes, Forestry District Supervisor, Missouri Department of Conservation
- Mr. Mike Petersen, Private Land Conservationist
- Mr. Jon Skinner, Urban Forester, Missouri Department of Conservation
- Ms. Ronda Headland, Community Conservation Planner, Missouri, Department of Conservation
- Mr. Mike DeBacker, Heartland Inventory and Monitoring Program
- Mr. Guy Headland, Outdoor Recreation Planner, Rivers, Trails, and Conservation Assistance Program, National Park Service
- Mr. John Wingo, President, Missouri Prairie Foundation
- George Washington Carver National Monument Volunteers-in-Park
- Ms. Martha Ruhe, Landscape Architect, NPS, (retired)
- Mr. Bill Jackson, Past Park Superintendent
- Mrs. Jodie Murray Burns, Chair, Carver Birthplace Association
- Honorable Mr. Bill Reiboldt, Missouri House of Representatives, District 160
- Honorable Mr. Bill Lant, Missouri House of Representatives, District 159
- Mr. Sam Claussen, President, Missouri Archeological Society
- Mr. Charles Nodler, Archivist, Missouri Southern State University
- Dr. Gary Kremer, Director, The State Historical Society of Missouri
- Mr. Keith Zoromski, History Department, Crowder College, Neosho
- Ms. Deb Sheals, Historic Preservation Consultant
- Mr. Steve Roark, President, Newton County Tourism Council
- Mr. Jeremy Elliott-Engel, County Program Director, Newton County Extension Center
- Mr. Greg Bowman, Regional Coordinator, Ducks Unlimited
- Mr. Bob Kulp, Director, Newton County Health Department
- Ms. Pauline Charles, Past CBA Business Manager and current VIP
- Ms. Mary Jean Barker, Past CBA Business Manager and long-time VIP
- Ms. Christy Hyman, Past seasonal employee, current VIP
- Mr. Justin Hall , Past seasonal employee, current VIP
- Ms. Judith Deel, State Historic Preservation Office
- Dr. Andrea Hunter, THPO, Osage Nation
- Ms. Lisa C. Baker, Acting THPO, United Keetoowah Band of Cherokee Indians
- Mr. Everett Bandy, THPO, Quapaw Tribe of Oklahoma
- Mr. Robert Cast, THPO, Caddo Nation
- Dr. Barker Fariss, THPO Archeologist for the Osage Nation

- Mr. Scott Willard, THPO, Miami Nation
- Ms. Sherri Clemons, THPO, Wyandotte Tribe
- Ms. Jean Ann Lambert, Assistant THPO, Quapaw Tribe
- Ms. Robin Dushane, THPO, Eastern Shawnee Tribe of Oklahoma
- Ms. Megan Bui, Community Focus Group Study participant 2013
- Rev. Dr. Betty Hannah-Witherspoon, Community Focus Group participant 2013
- Ms. Susan Marshall, Community Focus Group participant 2013
- Ms. Laurie Jones, Community Focus Group participant 2013
- Ms. Barbara True, Community Focus Group participant 2013
- Rev. Young K. Yoon, Community Focus Group participant 2013
- Mr. Bob Brower, Carthage YMCA
- Mr. Jonathan Roberts, Carthage YMCA
- Mr. and Mrs. Mike Funderburgh, Park neighbor
- Mr. and Mrs. Melvin Alford, Park neighbor
- Mr. and Mrs. Jess Holler, Park neighbor
- Mr. and Mrs. Glenn Brown, Park neighbor
- Mr. and Mrs. Elza Winter, Park neighbor
- Mr. and Mrs. Bob Plummer, Park neighbor
- Mr. Darwin Morgan, Annual family reunions held at the park (Carver ancestry).
- Mr. Stephen Gilmore, Annual family reunions held at the park (Carver ancestry).
- Ms. Lauren Copple, Missouri Department of Conservation
- Mr. and Mrs. Mike and Linda Simmons, Park VIP
- Mr. and Mrs. Larry and JoAnn Carnagey, Park VIP
- Mr. Dave Henness, Park VIP
- Ms. Cecelia Miller, Park VIP
- Mr. and Mrs. Don and Denise Jessen, Park VIP
- Ms. Phyllis Chancellor, Park VIP
- Mr. and Mrs. Jerry and Barbara Hixenbaugh, Park VIP
- Dr. Robert Heth, Biology Department, Missouri Southern State University
- Ms. Lydia Kaume, Barton County Extension Center, University of Missouri
- Ms. Meg Bourne Hulsey, Art Feeds
- Ms. Courtney Bay, Ozark Center
- Ms. Jennifer Jameson, Joplin Family YMCA
- Missouri Archeological Society, Missouri State University
- Newton County Commissioners
- Chamber of Commerce, Neosho
- Chamber of Commerce, Seneca
- Chamber of Commerce, Carthage
- Chamber of Commerce, Joplin
- Convention/Visitors Bureau, Joplin
- Mr. Dave Hendrix, Neosho National Fish Hatchery

- Mr. Brad Belk, Joplin Museum Complex/Tri-State Mineral Museum
- Executive Director, Wildcat Glades Conservation and Audubon Center
- Mr. Shane Hunter, Mayor, City of Diamond
- Historical Society, Newton County
- Dr. Eulanda Sanders, Iowa State University
- Dr. Paul Teverow, History Department, Missouri Southern State University
- Dr. Steve Smith, History Department Chair, Missouri Southern State University
- Dr. Al Cade, School of Education, Missouri Southern State University
- Ms. Sandy Taylor, Superintendent, Tuskegee Institute National Historic Site
- Dr. Matthew Jenkins, Acting President, Tuskegee Institute
- Honorable Charlie Davis, United States House of Representatives
- Honorable Billy Long, United States Congressman
- Honorable Claire McCaskill, United States Senate
- Honorable Roy Blunt, United State Senate
- Honorable Ron Richard, United States Senate
- Ms. Kris Drake, Freeman Health System
- Mr. Karl Schmidt, American Heart Association
- Mr. Joseph T. Njenga, Alliance of Southwest Missouri
- Dr. Jim Horton, Southwest Center for Educational Excellence
- Ms. Julia Price-Allison, Diamond High School
- Mr. and Mrs. Bill Abernathy, Park VIP
- Mr. and Mrs. Jack and Diane Andris, Park VIP
- Mrs. Penny Graves, Park VIP
- Mr. and Mrs. Phil and Gayle O'Hare, Park VIP
- Ms. Cathy Walsh, CDA Board Member
- Mr. Gary Stubblefield, CBA Board Member
- Mr. Larry Swift, CBA Board Member
- Dr. and Mrs. Roy Shaver, CBA Board Member
- Mr. and Mrs. William and Melody Colbert-Kean, CBA Board Member
- Dr. Linda Warner, CBA member
- Mr. and Mrs. Larry and Linda James, CBA Board Member

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

(This chapter to be included in final documentl)

8.0 Introduction

8.1 Development and Implementation of the Preferred Alternative

8.2 Project Phasing

8.3 Cost Estimate

Bibliography

Aldrich, Max W. *Soil Survey of Newton County, Missouri.* Washington, D.C.: U.S. Government Printing Office, September 1989.

Allgeier, Martin and Associates, Inc. *Phase I Environmental Site Assessment, Evelyn M. Taylor Living Trust Property, Elder Road, Diamond, Missouri*. Diamond, Missouri: George Washington Carver Birthplace District Association, Inc., 2004.

———. *Update of January 2004 Phase I Environmental Site Assessment, Evelyn M. Taylor Living Trust Property, Elder Road, Diamond, Missouri*. Diamond, Missouri: George Washington Carver Birthplace District Association, Inc., 2005.

Annis, Gust M., Michael D. DeBacker, David D. Diamond, Lee F. Elliott, Aaron J. Garringer, Phillip A. Hanberry, Kevin M. James, Ronnie D. Lee, Sherry A. Leis, Michael E. Morey, Dyanna L. Pursell, and Craig C. Young. *George Washington Carver National Monument Natural Resource Condition Assessment*. Natural Resource Report NPS/HTLN/NRR—2011/425. Fort Collins, Colorado: National Park Service, July 2011.

Auwaerter, John. "Guide to Cultural Landscape Reports, Landscape Line 17: Integrating Cultural Landscape Data into Facility Management." Second Draft. September 21, 2012.

Baker, Howard, Regional Chief of Planning, Region Two. *Planning Report Covering Boundary and Development Recommendations for (Proposed) George Washington Carver National Monument*. National Park Service, Region Two, 1943.

Beaubien, Paul L. "Report of Archaeological Investigations George Washington Carver N.M., Memorandum for the National Park Service, Region Two." National Park Service, 1954. On file at the Midwest Archeological Center, Lincoln, Nebraska.

Benn, David W. "An Intensive Archeological Survey of George Washington Carver National Monument." Springfield, Missouri: Center for Archaeological Research, Southwest Missouri State University, 1981.

Burchard, Peter Duncan. *George Washington Carver: For His Time and Ours. Special History Study: Natural History Related to George Washington Carver National Monument, Diamond, Missouri*. National Park Service, 2005.

Burfield, Michael P. and Charles H. Nilon. *George Washington Carver National Monument Prairie Restoration Management Review*. Columbia, Missouri: Department of Fisheries and Wildlife Sciences, University of Missouri, June 2011.

Carr, Ethan. *Mission 66: Modernism and the National Park Dilemma*. Amherst: University of Massachusetts, 2007.

Carroll, Orville W. *Historic Structures Report, Architectural Data Section, Part II, Moses Carver Late Period Dwelling, Building No. 5, George Washington Carver National Monument, Diamond, Missouri*. March 1966. Available in GWCNM Library.

Fuller, Robert P. "Report on Project #4: Moses Carver and His Family," National Park Service, George Washington Carver National Monument Park, October 18, 1955.

Fuller, Robert P. and Merrill J. Mattes, "The Early Life of George Washington Carver," Diamond, Missouri: George Washington Carver National Monument Library, November 26, 1957.

Garrison, Ervan, and Robert T. Bray. "Archeological Investigations at George Washington Carver N.M., 1975–1976." Department of Anthropology, American Archaeology Division, University of Missouri-Columbia, 1976.

Garrison, Ervan, Robert T. Bray, and David Denman, "Archeological Investigations at George Washington Carver N.M., 1978." Department of Anthropology, American Archaeology Division, University of Missouri-Columbia, 1978.

Gart, Jason H. *He Shall Direct Thy Paths: The Early Life of George W. Carver, Historic Resource Study*. Washington, D.C.: National Park Service, Department of the Interior, draft, 2013.

———. George Washington Carver National Monument, National Register Nomination Additional Documentation, draft, September 26, 2014.

"George Washington Carver National Monument." *National Register of Historic Places Inventory – Nomination Form.* National Park Service, October 15, 1966.

George Washington Carver National Monument: General Management Plan. National Park Service, June 24, 1997.

George Washington Carver National Monument, Cultural Landscape Inventory. National Park Service, 2010.

George Washington Carver National Monument: Scope of Collection Statement. National Park Service, August 4, 2011.

George Washington Carver National Monument Park Superintendent's Annual Reports. 1960–1967; 1972–1987; 1991–1992; 1994–2005; 2007–2008; 2011.

Harrington, John, Susan Haswell, and Evelyn Howell, with Arnold Alanen, *Springs of Genius: An Integrated Management Plan for George Washington Carver National Monument, Diamond, Missouri.* Madison, Wisconsin: Department of Landscape Architecture, University of Wisconsin, 1999.

Hunt, Bill. "Trip Report: Geophysical Inventory and Shovel Test Excavations at the Proposed Site of Visitor Center Expansion, George Washington Carver National Monument (GWCA)." National Park Service, 2004. On file at the Midwest Archeological Center, Lincoln, Nebraska.

Jones, Barry A. *Vascular Plant Inventory, George Washington Carver National Monument*, Technical Report NPS/HTLN/GWCA/ P2106020871, December 2004.

Krahe, Diane, and Theodore Catton. *George Washington Carver National Monument Administrative History*. National Park Service, 2014.

Long-Range Interpretive Plan. George Washington Carver National Monument, National Park Service, November 2007.

Master Plan Development Outlines George Washington Carver National Monument. National Park Service, April 1954.

Master Plan for George Washington Carver National Monument, Mission 66 Edition. National Park Service, May 1964.

Master Plan for the Preservation and Use of George Washington Carver National Monument. Volume 1, Chapter 2, Visitor Use Brief. National Park Service, September 1962.

Master Plan for the Preservation and Use of George Washington Carver National Monument, Mission 66 Edition. National Park Service, July 1961.

Montembeault, Nikki. *Accessibility Assessment Report Summary.*

National Park Service. *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. Washington, D.C.: Department of the Interior, National Park Service, 1995.

Neuman, Robert W. "Archaeological Investigations at the George Washington Carver N.M., Missouri, 1958." Missouri Basin Project, Smithsonian Institution, 1958.

"NPS Maintained Landscape Business Practices & Inspection Guidance." National Park Service, September 2009.

Ortega, Richard L. George Washington Carver National Monument, National Register Nomination, 1976.

Osborn, Chip, and Jay Feldman. "Midwest Region Pilot Turf Stewardship Project." Washington D.C.: National Park Service, February 2011.

Palmer, Ernest J. *The Flora and Natural History of George Washington Carver National Monument*. U.S. Department of the Interior, National Park Service, Research/Resources Management Report MWR-3. 1983 (published posthumously).

Peterson, Lori, under the Supervision of Mary Jo Schneider and Robert Cochran. *A Study of African-American Culture in Southwest Missouri in Relation to the George Washington Carver National Monument*. National Park Service, 1995.

Prairie Restoration Action Plan: George Washington Carver National Monument. National Park Service, 1995.

Resources Management Plan and Environmental Assessment: George Washington Carver National Monument. National Park Service, 1984.

Resources Management Plan. George Washington Carver National Monument. National Park Service, 1999.

Susan Richards Johnson and Associates, Inc. *Historic Structure Report for the 1872 Neosho Colored School.* George Washington Carver Birthplace Association and National Park Service, August 15, 2012.

Toogood, Anna Coxe. *George Washington Carver National Monument, Diamond, Missouri: Historic Resource Study and Administrative History.* July 1973.

"Vegetation Classification and Mapping of George Washington Carver National Monument." *Project Report.* National Park Service, April 2013.

Weymouth, John W. "A Magnetic Survey of Portions of the George Washington Carver N.M." Department of Physics and Astronomy, University of Nebraska-Lincoln, 1975.

Wildland Fire Management Plan: George Washington Carver National Monument. National Park Service, May 2004.

Woolpert LLP. "Environmental Assessment for Visitor Center Renovation and Addition." June 2004.

Young, Craig, Jordan Bell, and Jennifer Haack. "Invasive Plant Monitoring in George Washington Carver National Monument." Republic, Missouri: National Park Service Heartland Network, 2014.