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.

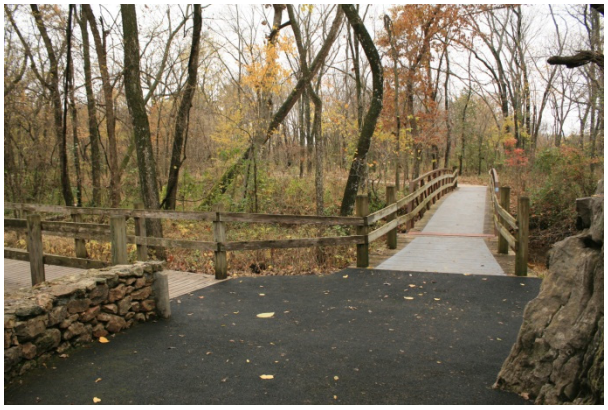

FIGURE 104. A prefabricated bridge conveys the trail over Carver Branch.

FIGURE 105. Boardwalk is used where the trail crosses the confluence of Williams and Carver branches.

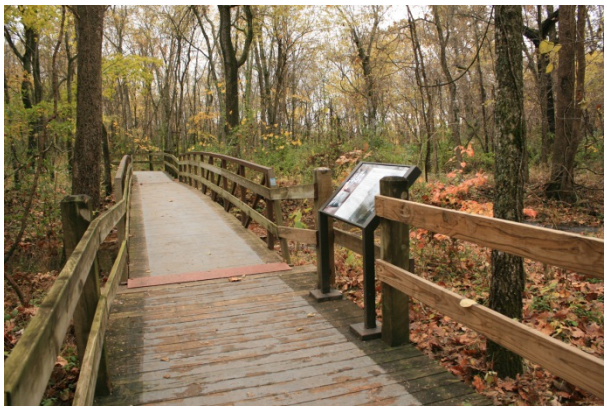

FIGURE 106. A second prefabricated bridge crosses the confluence of Carver and Williams branches.

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