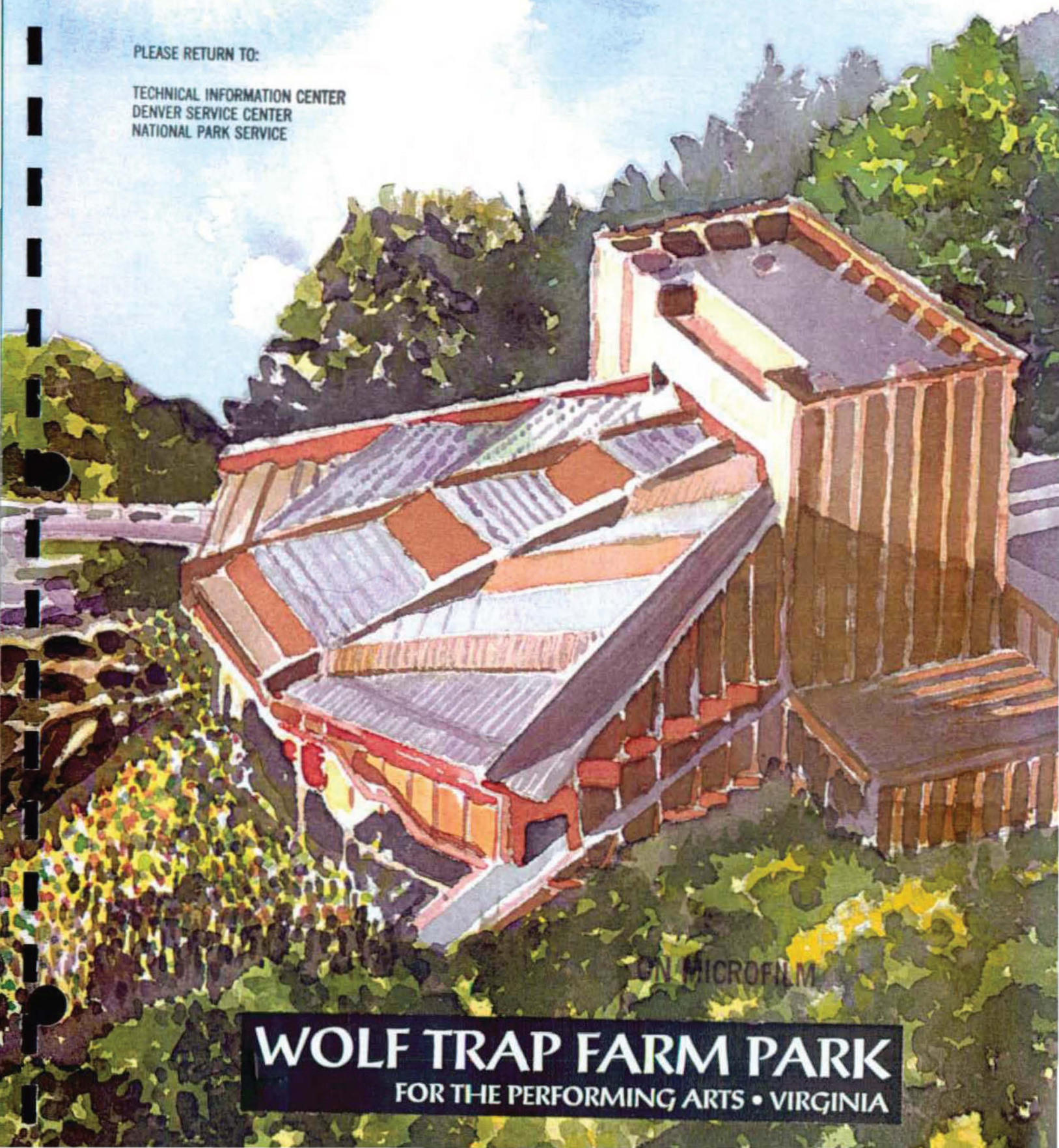
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draft
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development concept plan
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WOLF TRAP FARM PARK

FOR THE PERFORMING ARTS • VIRGINIA

Draft
General Management Plan / Development Concept Plan
Environmental Impact Statement

WOLF TRAP FARM PARK
for the Performing Arts
Fairfax County, Virginia

This *Draft General Management Plan / Development Concept Plan / Environmental Impact Statement* describes four alternatives for future management and use of Wolf Trap Farm Park for the Performing Arts. Alternative 1 (continuation of current management practices or no action) would continue to provide the best possible performance experience within the existing infrastructure. No major modifications to structures or parking and circulation facilities would be made. Improvements in safety, security, and routine maintenance would be undertaken as funding became available. The park would, however, continue to experience parking and circulation problems, and frustrations would continue because not all cars arriving at many performances could be accommodated. Alternative 2 would absorb most parking impacts on paved lots within the park boundaries. Many level areas with good access to existing roads within the park would be paved and striped for parking. Grass areas currently used for parking would be paved and striped for safe and orderly parking. Because not all cars could be accommodated in the park during sold-out performances, a remote parking area and shuttle bus system would also be implemented. Some areas of the park's country character would be sacrificed to improve patron convenience, services, and safety, and to minimize parking impacts on surrounding neighborhoods. Alternative 3 would accommodate all vehicles and pedestrians in safe, separate areas, and would upgrade support facilities. A parking structure would be built onsite, and existing paved parking lots would be upgraded to absorb all performance-generated parking impacts. Grass parking would be eliminated, and a safer, more dramatic approach to the Filene Center would be created. The box office plaza area would be redesigned for patron and visitor services, safety, and appreciation and understanding of the performing arts. The intent would be to separate vehicular traffic from pedestrians, to enhance the country setting and the ambience, and to reduce the visual interference of support facilities. Alternative 4 (the proposed action) would provide sufficient parking for all visitors within the park boundaries without substantial additional paving or structures. To achieve adequate parking space, approximately 3 acres of forested area would be cleared and a portion of the adjacent grass parking areas regraded. The existing paved parking areas would be repaved and striped to allow for maximum capacity. All grass parking would be formalized with lighted walkways for safe and orderly pedestrian passage. The pedestrian circulation of the park would be redesigned to allow for a more organized approach to the Filene Center and associated areas. The existing box office building and ancillary buildings at the plaza would be removed and replaced with a single-story structure that would consolidate all patron and visitor focused functions, including elements and artifacts depicting and interpreting the performing arts. A development concept plan for the box office plaza building and the circle drive area has been included as part of alternative 4. Although this alternative requires the removal of some forested areas and regrading hills, steps would be taken to retain the rural feel and country character of the site. Environmental impacts that would result from implementation of the alternatives are addressed in this document. Impact topics include natural and cultural resources, transportation, patron experience, and socioeconomic environment.

Comments on this document should be sent no later than March 3, 1997, to:

Director
Wolf Trap Farm Park for the Performing Arts
1551 Trap Road
Vienna, VA 22182

United States Department of the Interior • National Park Service

Color Scans
11/15/2002

SUMMARY

INTRODUCTION

Wolf Trap Farm Park for the Performing Arts was authorized October 15, 1966, by Public Law 89-671 "for the purpose of establishing in the National Capital area a park for the performing arts and related educational programs and recreation use in connection therewith. . . ."

The legislation also directed the secretary of the interior to enter into cooperative agreements with the Wolf Trap Foundation (foundation), a private nonprofit organization, to establish responsibilities regarding the presentation of performing arts and related educational programs as well as park operations. Those responsibilities generally have been established as follows: the Wolf Trap Foundation administers the performing arts schedule and content for the 7,000-person capacity Filene Center amphitheater and lawn; the National Park Service develops and presents educational and interpretive programs and operates the park to support the performances and programs.

This *Draft General Management Plan / Development Concept Plan / Environmental Impact Statement* has been prepared in cooperation with the Wolf Trap Foundation to analyze ways to fulfill NPS responsibilities for this park as authorized in the cooperative agreements. It provides management guidance for concerns related to patron and visitor accommodations and services; parking and traffic circulation; impacts on the natural, cultural, and socioeconomic environments; interpretation of the performing arts; and appropriate locations and levels of use by patrons and visitors.

This draft document presents four alternatives for future management and use of Wolf Trap Farm Park. A development concept plan for the box office plaza and the circle drive area has been included as part of alternative 4, the National Park Service's proposed action.

THE ALTERNATIVES

The following four alternatives and the alternatives considered but rejected represent the full range of alternatives studied for the management of Wolf Trap.

Alternative 1 (No Action)

The continuation of current management practices, or no action, alternative would continue to provide the best possible performance experience within the existing infrastructure. No major modifications to structures or parking and circulation facilities would be made. Improvements in safety, security, and routine maintenance would be undertaken as funding became available. The park would, however, continue to experience parking and circulation problems, and frustrations would continue because not all cars arriving at many performances could be accommodated.

Alternative 2

Under this alternative, most parking impacts would be absorbed on paved lots within the park boundaries. Many additional level areas with good access to existing roads within the park would be paved and striped for parking. Grass areas currently used for parking would be paved and striped for safe and orderly parking. A remote parking area and shuttle bus system would also be implemented for up to 350 cars. Some areas of the park's country character would be sacrificed to improve patron convenience, services, and safety, and to minimize parking impacts on surrounding neighborhoods.

Alternative 3

Under this alternative, vehicles and pedestrians would be accommodated in safe, separate areas, and support facilities would be upgraded to be more in concert with the Filene Center performing arts complex. A parking structure would be built onsite, and existing paved parking lots would be improved to absorb all performance-generated parking impacts. Grass parking would be eliminated, and a more dramatic approach to the Filene Center would be created. The box office plaza area would be redesigned for patron and visitor services, safety, and appreciation and understanding of the performing arts. The intent would be to separate vehicular traffic from pedestrians, to capitalize on the country setting and the ambience, and to reduce the visual interference of support facilities.

Alternative 4 (Proposed Action)

In this action proposed by the National Park Service, sufficient parking would be provided for all visitors within the park boundaries without substantial additional paving or structures. To achieve adequate parking space, approximately 3 acres of forested area would be cleared and a portion of the adjacent grass parking areas regraded. The existing paved parking areas would be repaved and striped to allow for maximum capacity. All grass parking would be formalized with lighted walkways for safe and orderly pedestrian passage. The pedestrian circulation of the park would be redesigned to allow for a more organized approach to the Filene Center and associated areas. The existing box office building and ancillary buildings at the plaza would be removed and replaced with a single-story structure that would consolidate all patron and visitor focused functions. A development concept plan for the box office plaza building and the circle drive area has been included as part of alternative 4. Although this alternative requires the removal of forested areas and regrading hills, steps would be taken to retain the rural feel and country character of the site.

MITIGATION MEASURES STUDIED

During the course of this planning effort, several major issues emerged requiring an analysis of different strategies or techniques for mitigation. These include impacts from parking in surrounding neighborhoods, impacts on park resources from parking within the park, and comfort of park patrons.

Other issues such as park character and patron safety would be affected by the particular strategies identified to address these major issues. This was taken into account in the analysis of the mitigation techniques.

The following measures were studied as mitigation for one or several of the alternatives outlined in this plan:

(1) expanded parking areas to provide enough space to allow all parking within park boundaries instead of overflow parking in nearby neighborhoods

(2) use of remote parking to accommodate up to 350 vehicles and use of shuttle buses to transport patrons from the parking area to and from the park

(3) use of park staff and changeable traffic signs to direct patrons to the remote parking area when onsite parking areas are near capacity; requirement of staff to be onsite and at the remote site to manage parking operations

(4) increased safety for pedestrians to prevent the need to walk in the streets

(5) use of more traffic control staff and directional signage to direct patrons to the correct parking areas onsite

(6) mimicking natural edges of the forest and retention of selected trees in designing tree removal in the new parking area to break the cleared area visually

(7) aggressive marketing of a Metro rail stop planned at Tyson's Corner and Reston with Metrobus connections to performances at Wolf Trap

Additional mitigation measures relating to resource protection would be developed through the careful design of new parking areas and buildings. Onsite monitoring of soil conditions would continue in areas where vehicles are parked in grass areas during events. These efforts would ensure that proper vegetative cover was present to reduce the potential of soil erosion during hot, dry periods and stormy weather. Vehicles would be restricted from these areas when problems were detected.

Water resource values would be protected through design of gradients for surface water flow. Point discharges through culverts would not be used, but rather slopes would be designed to accommodate sheet flow from these areas. Small retention basins would be constructed, if needed, to retain excessive surface water runoff during major storm events. These actions would lessen the intense surface inputs directly into the stream channel, reducing the potential of stormwater surges and increased erosion in the floodplain. The potential for flood periodicity and magnitude would therefore be reduced.

The designs for the pedestrian circulation and its related construction, as well as for the new box office plaza building, would be compatible with the Filene Center without introducing a visual or design impact into the country character of the site. Design for these areas would use materials and plantings that would blend into the site rather than dominate it visually. Building and drainage design would be done in conjunction with the construction phase once an alternative was selected.

ENVIRONMENTAL CONSEQUENCES

Impacts have been analyzed for the four alternatives and are summarized below.

Impacts of Alternative 1 (Continuation of Existing Management Practices)

During performance events, high amounts of mobile sources of pollutants (e.g., carbon monoxide, nitrogen oxides, fine particulates) would probably continue to be concentrated in the vicinity of traffic congestion as a result of patron arrivals and departures. Short-term air quality impacts would result from fugitive dust/fine particulate matter during grading and construction activities.

Grading and filling activities associated with widening the existing sidewalk would directly impact those soil types within the footprint and work area of the proposed development. Compaction of the soils would continue in those areas of the park where patron parking was permitted on grass areas (approximately 15.56 acres). There would be a long-term potential for soil contamination from automobile oil leaks and other discharges with the continuation of parking in these areas.

The most significant impact on the water resources within the park would be to the intermittent stream flowing from the southern boundary toward the Filene Center and confluences with Wolf Trap Run. External development actions have changed the water quantity and quality and of the creek's surface water regime. Widening the park's pedestrian routes would not have an adverse impact on water resources or water resource values of the park.

There would be no impacts on floodplain values in the park through proposed development actions.

There would not be any direct or indirect impact on wetlands or their associated communities as proposed construction would occur outside wetland areas.

Use of grass parking areas by event patrons would continue to commit 15.56 acres of the parkland–open vegetation for parking and continue to require the planting of nonnative grass species.

There would be a short-term disruption and/or displacement of wildlife species during sidewalk construction activities. The core habitat along the riparian areas and in the upland and bottomland hardwood community types would remain unchanged.

There would be no effect on either threatened or endangered species because none inhabit or use the area, except for occasional transients.

The use and appearance of the structures would not change. The visual impact created by the parked cars on the grass areas would continue to have a negative impact on the setting of the site.

Archeological surveys would be conducted to determine if archeological resources would be disturbed by any of the proposed developments. If construction activities yield any resources, these sites would be recorded, and mitigation measures would be developed in consultation with the Virginia state historic preservation officer and the Advisory Council on Historic Preservation, in accordance with 36 CFR 800.11.

Long-term seasonal negative impacts would result from traffic circulation in the area before and after most performances. Some pedestrian/vehicular conflicts would continue as patrons walk to their vehicles parked south of the overpass over the toll road, and along Trap and Towlston Roads

north of the park to get to their vehicles in adjacent neighborhoods.

Late-comers to a performance would continue to be turned away from parking at Wolf Trap. Frustrations would continue for patrons because they would have to seek alternative parking away from the park, thus having to walk longer distances and missing the opening of the performance. There would be a long-term negative impact for 1,000 to 1,200 patrons for each sold-out performance.

The neighborhoods immediately surrounding the park should expect long-term negative impacts from traffic congestion and noise associated with parking on neighborhood streets whenever capacity or near capacity performances are scheduled.

Impacts of Alternative 2

The short-term impacts on air quality would be the same as alternative 1. In addition, the proposed increase in the number of parking spaces available to concert patrons within the boundary of the park would not be expected to contribute to incremental degradation of the air quality or the air quality related values of the park or the surrounding vicinity.

Grading and filling activities for establishing trail grades and trail alignment improvements would directly impact those soil types within the work area of the proposed development. Proposed walkway alignments and improvements would impact 1.41 acres of soils in addition to improvements in alternative 1. Paving parking in areas where grasses and forest communities currently exist would directly impact 18.25 acres and permanently remove soils in the developed area from productivity.

The impacts on water resources within the park would be the same as alternative 1. In addition, more acreage would be affected due to proposed developments (parking facilities and walkway improvements). Park flood levels and their associated discharge rates could increase from proposed developments near the Wolf Trap Run stream course (parking facility for east lot–forest), which could have downstream implications for the predicted flood periodicity and extent.

Actions associated with the development of the east lot and its adjacent walkway would directly impact the 1.2 acres of the floodplain of the Wolf Trap Run drainage. Proper floodplain protection would be provided through the design of the parking area and pedestrian walkway. All other actions are outside the 100-year floodplain.

As in alternative 1, there would not be any direct or indirect impact on wetlands or their associated communities as proposed developments would occur outside wetland areas.

Impacts from similar improvements to the walkway and pedestrian network would be the same as alternative 1. However, impacts associated with parking on the grass would be diminished by development of paved parking areas. Actions proposed for development for the east and west lots and walkway improvements would convert 7.49 acres from upland hardwoods community to a developed site. Approximately 11.23 acres of the parkland–open community would be lost within the park's boundary.

The impacts on wildlife species would be the same as alternative 1 for like actions proposed. In addition, long-term impacts for construction of the walkway alignments are also applicable. Impacts on wildlife resources would result from development of the parking areas and trail improvements at the east lot and Gil's hill. Development of the east lot could impact the most sensitive habitat values because of its proximity to riparian habitat onsite.

As in alternative 1, there would be no effect on either threatened or endangered species because none inhabit or use the area, except for occasional transients.

The appearance, structural components, and use of the buildings would not be affected. The immediate setting of the plaza area would be slightly altered to accommodate additional parking and pedestrian corridors. The expansion of parking into other areas of the park and the visual impact created by the parked cars would have a greater negative long-term impact on the country setting of the park than alternative 1.

As in alternative 1, it is not anticipated that any archeological resources would be disturbed by any of the proposed development. However, surveys would be conducted to determine if any sites exist. In addition, if construction activities yield any resources, these sites would be recorded, and mitigation measures would be developed in consultation with the Virginia state historic preservation officer and the Advisory Council on Historic Preservation, in accordance with 36 CFR 800.11.

Long-term positive impacts can be expected on traffic circulation in the immediate area of the park before and after performances, as most vehicles would be accommodated within the boundaries of the park. Pedestrian/vehicular conflicts would be greatly reduced because patrons would not be walking on Trap or Towlston Roads before and after sold-out performances. The operation of the shuttle system would require funding to operate the system as well as additional staff time to manage traffic and parking operations.

Patron frustration due to the inadequacy of available parking would be alleviated under this alternative. However, the additional pavement in the park and the density of cars onsite would have a moderate negative impact on the country character of the experience.

The neighborhoods immediately surrounding the park should expect long-term positive benefits as most vehicles would be accommodated within the park. However, regular periods of traffic congestion associated with performances would continue seasonally over the long term.

Impacts of Alternative 3

The short-term impacts on air quality would be the same as alternative 1. In addition, through the employment of a centralized parking facility, onsite air quality during performances could be slightly improved above ambient conditions because traffic circulation would be improved. An onsite facility would provide for enhanced traffic flow into the park, result in less congestion, shorter idling times, and less pollution.

Grading and filling activities for the accessible lot and walkway modifications would directly impact those soil types within the work area of the proposed development. Approximately 10.06 acres of impacted soils

would be returned to a more natural condition with the elimination of 1,249 parking spaces on the grass community and in some of the existing paved parking sites. Soil impacts from compaction by vehicles traveling and parking on grass cover would be eliminated.

The impacts on water resources would be the same as alternative 1. In addition, other development actions would provide for better water management practices onsite with little or no additional impacts on water resources. Areas closed to parking (e.g., Gil's hill area, dust bowl) would be returned to a natural condition, which would allow stormwaters to percolate into the ground rather than discharge as a sheet flow directly into Wolf Trap Run.

As in alternative 1, there would not be any direct or indirect impact on wetlands or their associated communities as proposed developments would occur outside wetland areas.

Impacts on vegetative communities from development of the accessible lot and some of the walkway modifications would be the same as alternative 1. In addition, the elimination of parking in areas of the parkland–open vegetation community would allow the reestablishment of a grass landscape and return 10.06 acres to a more natural condition.

Impacts on wildlife species would be the same as alternative 1 for similar actions proposed. In addition, with the removal of parking from the parkland–open vegetation community and restoration of 10.06 acres, there would be greater habitat for some wildlife species. Species abundance could increase due to the increase in open area and net decrease in developed areas within the park.

As in alternative 1, there would be no effect on either threatened or endangered species because none inhabit or use the area, except for occasional transients.

As in alternatives 1 and 2, the appearance of the structures would not be affected with the construction of a parking structure. Under this alternative, the use of the structures would remain the same. The potential redesign of pedestrian use and parking layout might affect the setting more than under alternatives 1 and 2.

The parking facility would create a greater visual impact than the existing west parking lot; however, it would help consolidate parking away from the farm and performance area.

Impacts on archeological sites would be the same as described in alternatives 1 and 2.

Long-term positive impacts can be expected on traffic circulation in the immediate area of the park before and after the performances, as vehicles would be accommodated within the boundaries of the park. Pedestrian/vehicular conflicts would be greatly reduced because of the elimination of dispersed parking on grass areas and along Trap and Towlston Roads. Staff time would be reduced to manage parking because over 80% of the patrons would use the parking structure during sold-out performances.

The neighborhoods immediately surrounding the park should expect long-term positive benefits as vehicles would not be parked along neighborhood streets. The quality and safety of the patron experience would be greatly enhanced by providing easy,

predictable parking, separating the vehicles from the pedestrians and creating more picnic areas.

Impacts of Alternative 4 (Proposed Action)

Short-term air quality impacts from construction activities would be the same as alternative 1. In addition, the increase in the number of parking spaces available to concert patrons within the boundary of the park would not be expected to contribute to incremental degradation of the air quality or the air quality related values for the park or the surrounding vicinity.

Grading and filling activities for walkway modifications would directly impact those soil types within the work area of the proposed development. Approximately 14 acres of soils onsite would be disturbed by grading and filling activities for other parking developments. Removal of existing paved surfaces would return approximately 0.48 acre to more natural soil conditions. Soils would continue to be impacted by vehicles from off-road travel and parking in the grass areas.

Impacts on water resources would be the same as alternative 1. In addition, none of the expanded or existing grass parking areas would be paved, providing for a slightly permeable soil condition, which would allow for infiltration of surface waters, especially during low magnitude storm events. Low-lying areas west of Trap Road within the park would continue to be flooded during peak storm events as a result of impacts associated with proposed actions.

As in alternative 1, there would be no impacts on floodplain values in the park through proposed development actions.

As in alternative 1, there would not be any direct or indirect impact on wetlands or their associated communities as proposed developments would occur outside wetland areas.

Approximately 3 acres of disturbance would occur within the forest community as a result of proposed actions. This would reduce the upland hardwood forest community by approximately 2% from its current condition, and could reduce species abundance. Vegetation composition would also change. Areas proposed for parking where grading would occur would be planted with grass capable of withstanding vehicular traffic/parking.

Impacts on wildlife species would be the same as alternative 1 for like actions proposed. In addition, the most critical impact on wildlife resources would be associated with proposed developments in the upland hardwood forest habitat type. The impacts could affect a greater number of species due to the type conversion of the forest community to an open parkland condition. The resident population of pileated woodpeckers could be affected by actions proposed.

No other effect on either endangered or threatened species would be expected because none inhabit or use the area, except for occasional transients.

The appearance of the structures as they currently exist would not be affected by the proposed parking practices. The improvements and redesign of the plaza/theater area would not affect the use

or appearance of the farm structures. The immediate setting around the plaza area would be altered due to the construction of new patron facilities and ticketing building. The visual impact created by a larger expanse of parked cars would have a greater negative impact on the country setting of the park than what currently exists. Grading some of the areas would negatively affect the rolling-hill atmosphere of the site.

Impacts on archeological sites would be the same as described in the other alternatives.

As in alternative 1, no known archeological resources would be disturbed by proposed developments. An archeological survey would be conducted prior to construction activities. In addition, if construction activities yield any resources, these sites would be recorded, and mitigation measures would be developed in consultation with the Virginia state historic preservation officer and the Advisory Council on Historic Preservation, in accordance with 36 CFR 800.11.

As in alternative 2, the neighborhoods immediately surrounding the park should expect long-term positive benefits as vehicles would be accommodated within the park. Patron parking in the neighborhoods would be eliminated, thereby greatly reducing traffic noise and congestion. However, regular periods of traffic congestion associated with performances would continue seasonally over the long term. Pedestrian safety would be enhanced because patrons would not have to walk on the shoulders of Trap and Towlston Roads before and after sold-out performances. The vehicular exit process at the end of performances would result in a longer time period to empty the parking lots east of Trap Road.

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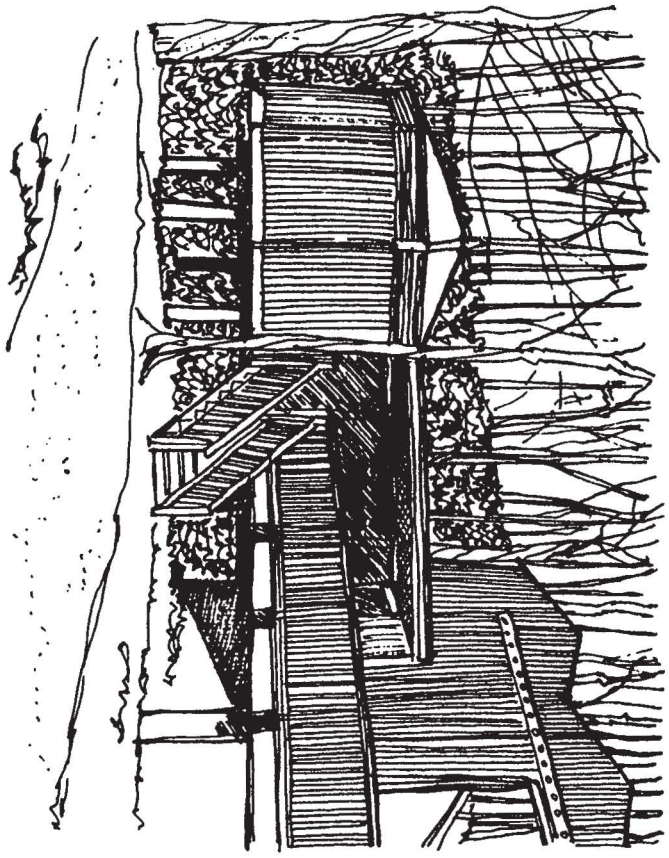
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INTRODUCTION

PURPOSE OF AND NEED FOR THE PLAN

Wolf Trap Farm Park for the Performing Arts was authorized October 15, 1966, by Public Law 89-671 "for the purpose of establishing in the National Capital area a park for the performing arts and related educational programs and recreation use in connection therewith. . . ." The law specified that the park would be administered in accordance with the provisions of the organic act of the National Park Service (see appendix A).

The legislation also directed the secretary of the interior to enter into cooperative agreements with the Wolf Trap Foundation (foundation), a private nonprofit organization, to establish responsibilities regarding the presentation of performing arts and related educational programs as well as park operations. Subsequent legislation (P.L. 101-636) directed that the secretary act jointly with the foundation to conduct a study and analysis of the operations and management practices being carried out pursuant to the Wolf Trap Farm Act (see appendix A). This joint management study was completed and signed by both parties in March 1993. The study and agreements divide the responsibilities generally as follows: the Wolf Trap Foundation administers the performing arts schedule and content for the 7,000-person capacity Filene Center amphitheater and lawn; the National Park Service develops and presents educational and interpretive programs and operates the park to support the performances and programs. National Park Service (NPS) support is all-inclusive and ranges from traffic control to managing and sharing the cost of paying union stagehands.

The foundation also owns and operates The Barns at Wolf Trap (The Barns), a performing arts facility located south of the NPS-owned Wolf Trap Farm Park. Generally, The Barns' season complements rather than competes with the Filene Center activities. The National Park Service does not participate in planning for or operation of The Barns or the educational programs of the foundation.

This *Draft General Management Plan / Development Concept Plan / Environmental Impact Statement* has been prepared in cooperation with the Wolf Trap Foundation to implement the purposes and policies of the National Park Service and those for which this park was established. It also presents optimum ways to fulfill NPS responsibilities for this park as authorized in the cooperative agreements. And it provides management guidance for concerns related to patron and visitor accommodations and services; parking and traffic circulation; impacts on the natural, cultural, and socioeconomic environments; interpretation of the performing arts; and appropriate locations and levels of use by patrons and visitors.

This draft document presents four alternatives for future management and use of Wolf Trap Farm Park. The alternatives range from continuing current management practices (no action) to the proposed action, in which the National Park Service, in cooperation with the Wolf Trap Foundation, would significantly alter and improve pedestrian and vehicle circulation as well as parking and patron accommodations.

A development concept plan for the box office plaza and the circle drive area has been included as part of the proposed action.

HISTORICAL OVERVIEW

Wolf Trap Farm Park for the Performing Arts, located in northern Virginia 15 miles west of Washington, D.C., encompasses 130.28 acres of scenic property (see the Regional Context and Park Features maps). From its beginning as a farm to its current use as a cultural and entertainment center, the natural terrain and setting were integral to the use and development of the property. Within the park boundaries, there are two distinct elements that are related to the park's history. The farming period is evidenced by the farmhouse and an eclectic assortment of outbuildings. The artistic and cultural ambience is provided by the Filene Center. Although there are two distinct phases of history evident by the structures of Wolf Trap, much of the park remains undeveloped woodlands and meadow. The park in its entirety comprises the Wolf Trap experience.

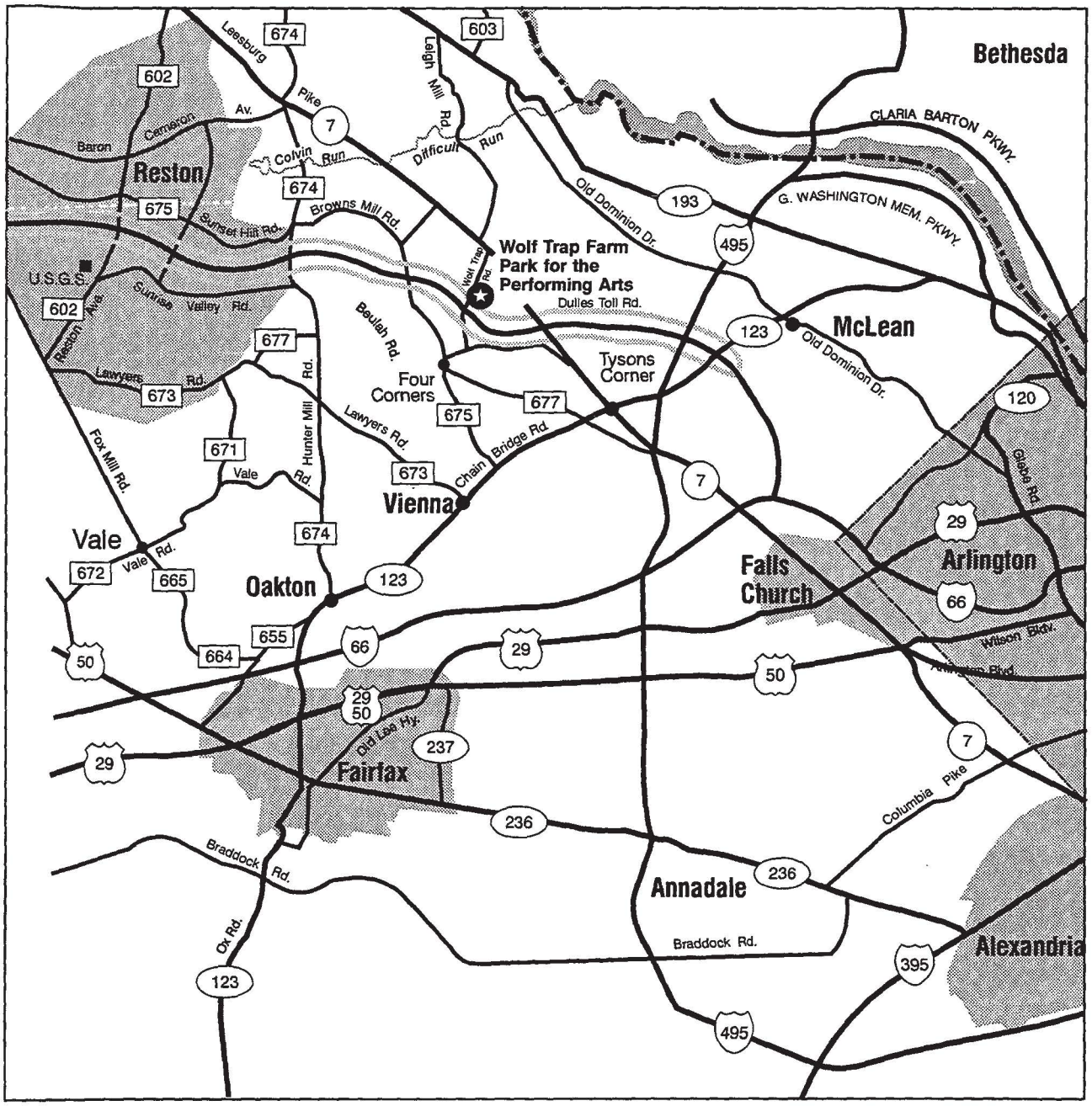
THE FARM

From its earliest settlement, Virginia provided the physical conditions needed to support impending colonization and agricultural development. The climate and topography provided ideal conditions for settlement patterns and established farming.

As the colonists acquired knowledge of the land from Native Americans, settlement expanded throughout Virginia. Settlement did not come easily, but obstacles were overcome, and the land was inhabited. As early as 1632, records indicate that wolves were prevalent in the region, and often viewed as a destructive element within the developing country. The General Assembly, in trying to deal with the situation, offered a bounty of tobacco for captured wolves. This, along with the settlement of the area and an increase in human population, brought a decrease in the wolf population and in the perceived threat that they posed.

The area that currently includes Wolf Trap was farmed in the 17th and 18th centuries. There were various landowners and divisions of the property until the 1930s. At that time, Mrs. Catherine Filene Dodd (Shouse) purchased a 53-acre plot, which made up the original tract of land that (in keeping with its history) was named "Wolf Trap Farm." Mrs. Shouse, purchasing the farm as a country retreat for her family, continued to purchase surrounding parcels of land until 1956, when her total landholdings reached 168 acres. She appreciated nature and the outdoors, and she spent a great deal of time cultivating and restoring the property. The Shouses farmed the land, planting and harvesting corn, wheat, alfalfa, and oats to provide food for their chickens, ducks, turkeys, Angus steers, hogs, and milk cows. They also raised and boarded horses, building a stable and haybarn to accommodate them. Although Mrs. Shouse knew little about farming when she bought the property, she learned enough that the farm became self-sufficient, providing the family with basic needs until the farming ceased in the mid-1940s.

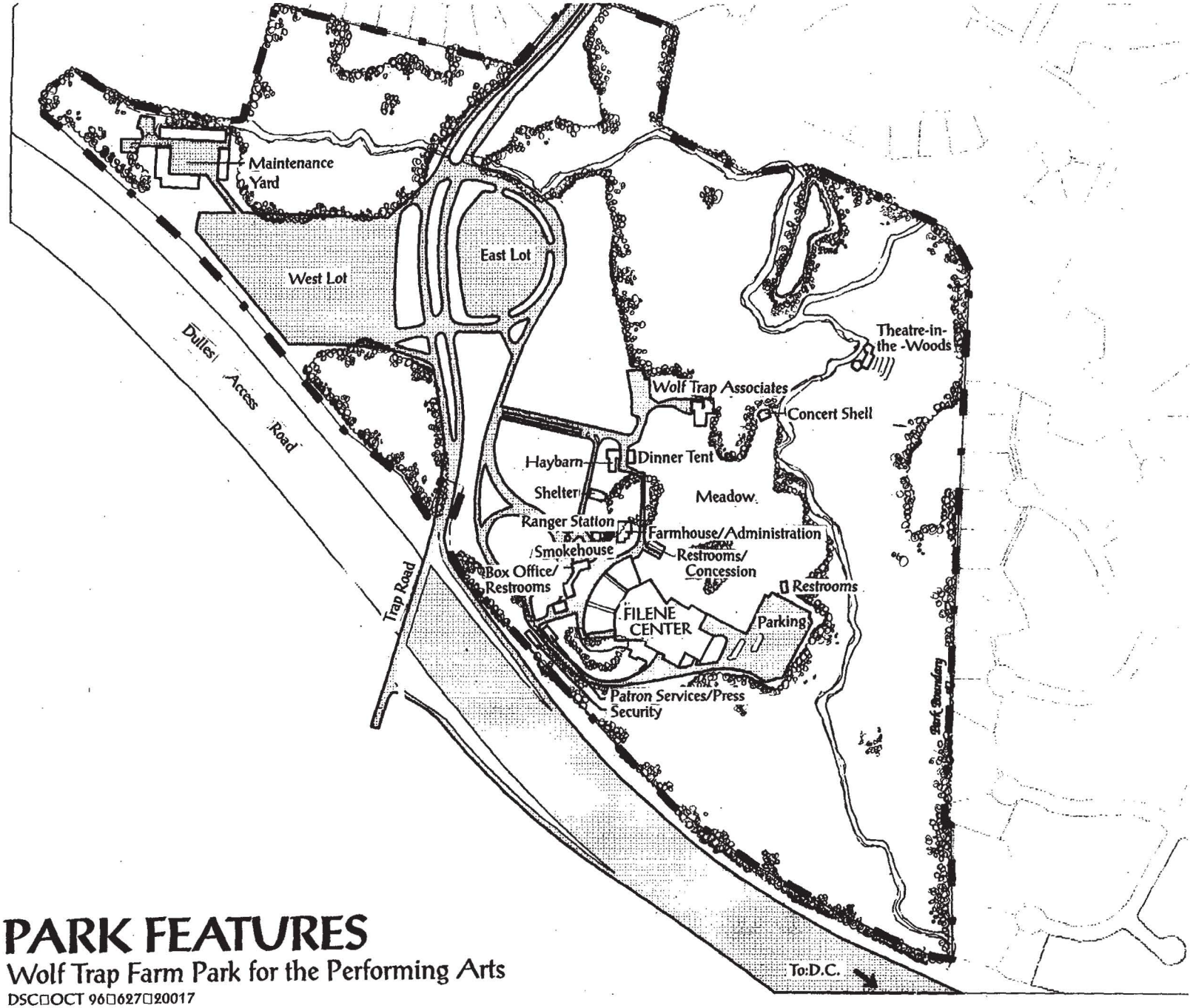
When the farm was purchased, it had a main house and 17 small outbuildings, including a barn, many small chicken houses, a pigsty, and a carriage house. These were subsequently removed to make room for a log cabin (which served as a guest house), a house for the children, and a haybarn near



REGIONAL CONTEXT

Wolf Trap Farm Park for the Performing Arts

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PARK FEATURES

Wolf Trap Farm Park for the Performing Arts

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the horse barn. Portions of the main house date to the 17th century. There have been several additions through the years, and it is currently being used as the park headquarters. When Mrs. Shouse bought the property there was no electricity, water, or bathrooms. She had electrical and telephone lines brought in from a mile away on Leesburg Pike, and the addition of an electric pump and booster brought water to the house.

With improvements and additions to the property, the farm became a comfortable country retreat where Mrs. Shouse could focus on many of her interests, including raising her prize boxer dogs and boarding horses. In addition to farming, the Shouses often hosted social and political events and parties at the farm. International visitors as well as members of society gathered at the farm during the Shouses' seasonal residency and on weekends. Mrs. Shouse's knowledge and reputation among social and political groups made her a formidable leader in the creation of Wolf Trap Farm Park for the Performing Arts.

The park retains few structures from the farm period as many of the original buildings and support structures were removed over time.

THE FILENE CENTER

With the increasing population and the development of the area surrounding Washington, Mrs. Shouse recognized the importance of preserving her property as a natural enclave. This, along with her appreciation of cultural and artistic expression and love of the arts, was a catalyst in the decision to transform Wolf Trap Farm into a center for the performing arts. With this vision, she offered her property to various groups.

In 1964 Mrs. Shouse offered her property to the federal government through the National Park Service. Along with the property, she offered $1,750,000 to assist in the construction of an amphitheater for the performing arts. The Park Service approached Congress to authorize the park and provide additional funding. Congress signed the bill to establish Wolf Trap Park for the Performing Arts in May 1966, and the area was authorized as a unit of the national park system on October 15, 1966.

Ground-breaking for the Filene Center took place in May 1968. When construction was nearly completed, tragedy struck. Fourteen weeks before the scheduled opening date a fire destroyed nearly 60% of the structure, leaving the opening date uncertain. However, with additional fund-raising and the hard work and dedication of those building the structure, Wolf Trap opened in July 1971.

The Filene Center provided patrons with a setting and a variety of performers that made its first few years very successful. In 1982, fire struck again, this time totally destroying the Filene Center. Although this was a great loss to the park, it did not stop performances from continuing. A temporary shell was erected through the assistance and generosity of the Saudi Arabian government. The structure, which had been used as an international oil technology exhibition center, was dismantled and shipped to Wolf Trap. It was transformed into a tent-like amphitheater that housed the performances of the 1982 and 1983 seasons. Fund-raising for the reconstruction of a permanent structure had begun immediately. Donations from the private sector, as well as funding

and a loan established by congressional legislation, provided the financial basis for rebuilding the Filene Center. Completed for the 1984 season, Wolf Trap was once again a premier entertainment center, and it continues to entertain and educate thousands of patrons and visitors.

WOLF TRAP FARM PARK TODAY

One of the factors important to the success of Wolf Trap Farm Park is its setting. Located within suburban northern Virginia, the natural environment and the country setting make this an extraordinary and distinctive entertainment facility.

While the farm operations have ceased and the historic landscape is no longer present, there are natural and topographic features that provide scenic views and qualities that are reminiscent of the historic countryside. It is this background that makes Wolf Trap Farm Park for the Performing Arts distinctive. Wolf Trap Farm Park is one of a handful of premier outdoor performing arts venues that include Tanglewood in Massachusetts, Ravinia in Illinois, and Red Rocks in Colorado. Each of these places is distinctive because they present the arts in dramatic settings under the stars. With the urbanization of northern Virginia, Wolf Trap provides a natural enclave and scenic landscape in the midst of development. This atmosphere must be maintained and cultivated to preserve the presence and purpose of Wolf Trap Farm Park.

Wolf Trap Farm Park is different from other units of the national park system. It is the only national park established solely for the presentation of performing arts.

Most parks undergo dramatic changes with the seasons; blankets of snow and silence give way to summer sun as crowds return to the canyon, the beach, the trail. At Wolf Trap, the metamorphosis happens daily. This sleepy Virginia farmstead hosts bird watchers and school children during the day. Then as night falls, the lights come up. The pathways and picnic tables fill with friends in festive colors. Music fills the air and the view to the stage is like a jewel ablaze in the darkness.

Over the years, Wolf Trap Farm Park has grown steadily, becoming a summer entertainment tradition. In 1984, the first season after the fire that destroyed the Filene Center, Wolf Trap hosted 40 performances for crowds averaging 3,000 in number. In 1995, 82 performances were held from May to September; 15 of those were sold-out shows with over 7,000 tickets distributed each night. Meanwhile, infrastructure for patrons and their vehicles has remained at the same basic levels as in 1984.

Park staff copes admirably using a parking system that is choreographed like a ballet, parking every available space with cars. This intensive effort is repeated every night all season long.

Another aspect of Wolf Trap that is distinctive is the management arrangement. By legislative directive, Wolf Trap Farm is co-managed by the National Park Service and the Wolf Trap Foundation. This partnership enables both entities to bring to the public excellence of programming and a high quality concert experience.

PARK PURPOSE AND SIGNIFICANCE

The first steps in planning for an NPS unit are to identify why Congress established the park, what purpose the park is intended to fulfill, and the park's national significance — in other words, the reason that the park was created. The enabling legislation, pertinent legislative history, and the laws and regulations that guide NPS management are examined. Following are the purpose and significance statements of Wolf Trap Farm Park.

PURPOSE

- Wolf Trap is a park for the performing arts and related educational programs and for recreational use in connection therewith.
- Wolf Trap provides exposure to the performing arts and artists so that patrons and visitors can gain understanding, knowledge, and appreciation of the programs.
- Wolf Trap's informal country setting provides an important aspect of the character of the Wolf Trap performing arts experience and offers secondary interpretive opportunities that contribute to the primary purpose.

SIGNIFICANCE

- Wolf Trap is a unit of the national park system that has, as its primary resource, the presentation of the performing arts.
- Wolf Trap is co-managed by the National Park Service and the private nonprofit Wolf Trap Foundation.
- Wolf Trap provides a distinctive informal, pastoral setting in which to enjoy the performing arts.
- Wolf Trap has a national and international reputation for high quality performances and as a premier performance facility.
- Because of its technical capabilities, the Filene Center presents a variety of programming that other performing arts centers cannot accommodate.

MANAGEMENT OBJECTIVES

If the purpose and significance explain why a park was created, management objectives describe what should be done to fulfill the purpose of the park. Following are the management objectives of Wolf Trap Farm Park.

PROGRAMMING/FACILITY USE

- Provide a broad spectrum of high quality performing arts and related year-round education programs for local, national, and international audiences.
- Increase use of ancillary performing arts sites throughout the park.
- Reach out to new audiences and broaden the composition of the populations attending programs.
- Continue to maintain and upgrade the technical capability of the Filene Center and other park facilities to sustain Wolf Trap as a world class performing arts complex.

PARTNERSHIPS

- Seek additional opportunities to maximize cooperation between the National Park Service and the Wolf Trap Foundation, including joint participation in educational and interpretive programs.
- Explore opportunities for third-party participation in and support of NPS/foundation programs and projects.
- Maintain good relationships with park neighbors.

ACCESS AND INFRASTRUCTURE

- Provide adequate access to and egress from the park.
- Improve pedestrian circulation in the park to increase ease and safety of access.
- Improve performing arts facilities to serve smaller stage productions, including children's programming, festivals, and other special focus programming.
- Provide sufficient restrooms, concessions, picnic areas, and other visitor support facilities to accommodate capacity-level audiences at the Filene Center.
- Provide adequate and appropriate visitor parking.

EDUCATION AND INTERPRETATION

- Expand educational and interpretive programs for young people.
- Increase employee awareness of the performing arts.
- Provide visitors with a better understanding of the performing arts while at Wolf Trap.

- Explain to visitors the roles of the National Park Service and the Wolf Trap Foundation as co-managers of Wolf Trap as a national park for the performing arts.

- Provide the highest quality and most diverse educational programs to the widest possible audience.

COUNTRY ATMOSPHERE

- Preserve the country atmosphere of Wolf Trap Farm Park as intended by its founder, Catherine Filene Shouse.

WOLF TRAP FOUNDATION MISSION AND GOALS

Following are the mission and goals that were adopted by the Wolf Trap Foundation in 1992.

MISSION

- To enrich, educate, and provide enjoyment to the widest possible audiences through a broad spectrum of accessible high quality activities in the performing arts.

GOALS

- To present a broad spectrum of high quality performing arts and related educational programs for local, national, and worldwide audiences.
- To be a recognized leader in the performing arts and to attract each year the artists of national and international stature.
- To attract audiences to more performances year by year.
- To develop greater understanding of and seek broad financial support for the foundation's activities from individuals, organizations, governments, businesses, and foundations throughout this country and around the world.
- To present programs that may not be fully self-sustaining. Such programs will
  - broaden the artistic horizons of audiences and enrich their appreciation of the performing arts
  - reach out to new audiences and broaden the composition of those attending performances
  - introduce young people to the performing arts
  - present original productions, innovative performances, and explore the opportunities offered by experimental technologies
  - present promising artists early in their careers and advance the professional careers of emerging performing artists, such as through opera
  - create, distribute, and develop techniques using the performing arts to enhance preschool children's learning abilities
- To develop the foundation properties and facilities, and to work closely with the secretary of the interior to develop park properties, facilities, and policies to support carrying out these goals.

ISSUES AND OBSTACLES

An important step in the planning process was discovering issues or obstacles that prevent park management from fulfilling the park's purpose or management objectives.

To compile a complete list of issues, many sources were consulted, including NPS and foundation staff, the patrons, the Foundation Board of Directors, park neighbors, local and state government representatives, and the general public. Methods for collecting information included public meetings, interviews, briefings with the Foundation Board of Directors, and meetings with staff. The following issues are to be resolved by this general management plan for Wolf Trap Farm Park for the Performing Arts.

VEHICLE PARKING AND CIRCULATION AND PEDESTRIAN TRAFFIC

Parking and Traffic Congestion

Lack of Adequate Parking. A sold-out performance at Wolf Trap generates approximately 3,400 cars. There is only enough paved parking to handle about 40% of the parking demand generated by a sold-out performance. With the use of the grass parking areas, the park can handle only about 85% of the peak demand. This results in the displacement of about 500 vehicles carrying over 1,000 patrons into the surrounding neighborhoods. Patrons arriving latest, i.e., closest to the start of sold-out performances are turned away from the park at the entrance and must seek parking on their own, a time-consuming exercise that further delays their schedule.

Offsite parking also creates an impact on the neighborhoods. The disturbance to the neighbors is greatest late at night after sold-out performances when car doors and conversations of departing patrons invade quiet neighborhood streets. Additional pedestrian/vehicular conflicts are created as these patrons walk to and from the park along busy roads without sidewalks. Parking along Towlston and Trap Roads creates traffic congestion problems and pedestrian conflicts.

Sold-out performances and the parking problems associated with them occurred 26 times in 1994, 14 times in 1995, and 16 times in 1996. Near sellouts, times that created parking overflow that was problematic but not fully 500 cars, occurred each season about 10 times in addition to the sellouts.

Residents of surrounding neighborhoods have expressed opposition to posting signs prohibiting street parking. It would be difficult, therefore, to guarantee that no performance-generated parking would occur under any alternative.

Grass Areas of the Park. Parking vehicles on the grass areas within the park destroys the grass and degrades the aesthetic quality of the park. There is also concern for pedestrian and vehicle safety during the exit process.

Traffic Congestion and Delays in Entering the Park when Onsite Parking is Approaching Capacity. Congestion occurs when there is confusion on the part of the patrons trying to enter the site to park. These patrons must be redirected away from

the park to the only remaining areas where parking is allowed, which are in the nearby neighborhoods. This situation, along with parking on the shoulders of Trap Road and on selected sidewalks, creates circulation problems, impacts the surrounding neighborhoods, and increases the potential for pedestrian/vehicular conflicts.

Pedestrian Traffic/Circulation

Lack of Pedestrian Facilities. The principal pedestrian paths in the park are undersized for the demand. These paths are poorly lighted and do not function well. Most of the patrons walk in the road because the paths are too narrow and poorly illuminated. There are no sidewalks or street lights along the south exit route leading across the bridge over the toll road and down to The Barns of Wolf Trap where patrons sometimes seek parking. Patrons have to walk on Trap Road, which impedes the vehicular traffic flow and increases the probability of pedestrian/vehicular conflicts.

OPERATIONS AND PATRON SERVICES AT THE FILENE CENTER

The heaviest visitor traffic is generated by performances at the Filene Center. Filene Center issues for the general management plan include determining

- appropriate maximum capacity
- adequacy of comfort stations and concessions
- volume of sound from the perspective of the performers, the patrons, and the neighbors
- improvements in the current lawn seating experience
- appropriateness of concurrent performances and extension of the performance season with regard to facility capabilities

OPERATIONS AND PATRON SERVICES ON THE MEADOW AND IN THE WOODS

The meadow is used for pre-performance patron picnics, special events, and group outings. The foundation has suggested that the meadow be used to expand attendance for Filene Center performances. The woods are home to the Theatre-in-the-Woods, a small amphitheater for children's shows, and nature trails.

Issues the general management plan will address for these areas include

- comfort stations and drinking water facilities
- fire protection
- uses in the meadow, including festivals and galas, expanded seating for concerts, and development of additional party facilities

EDUCATION AND INTERPRETATION

Opportunities to coordinate the information services and educational and interpretative programs offered by the National Park Service and the foundation to take advantage of the talents and resources of both entities have yet to be explored. Optimum ways to deliver visitor education and information will be examined.

ADMINISTRATIVE NEEDS

Adequacy of space and appropriateness of location for administrative functions of both the National Park Service and the foundation on NPS-owned property will be studied in this plan.

CHARACTER OF WOLF TRAP

The character and quality of the Wolf Trap experience could be affected by the number of patrons and the infrastructure required to accommodate them. Preservation of Wolf Trap's character will also be addressed.

ISSUES BEYOND THE SCOPE OF THE GENERAL MANAGEMENT PLAN

The following issues relate to the park, but because they are outside the realm of this general management plan they will not be addressed in this document.

Programming

The current cooperative agreement between the National Park Service and the Wolf Trap Foundation states that the foundation will work toward the financial self-sufficiency of the performing arts programs. Additionally, both the Park Service and the foundation hope to achieve greater patron diversity. Achieving these goals could influence the programming mix.

While this plan supports diversifying the audience at Wolf Trap, it will not address programming in the park. It will address the impacts of performances to the park and the theater experience through establishing appropriate maximum capacity for and frequency of performances, adequacy of infrastructure and services, and appropriate duration of the performance season.

Noise Mitigation

A study of noise generated by the performers, the audience, and traffic was conducted. The results are included in the "Affected Environment" section. Under all alternatives, the park and the foundation would strive to meet applicable noise regulations. Contracts with performers would continue to include agreements to adhere to the maximum allowed decibel levels and penalties for violating them. However, structural amendments to the theater or the surrounding surfaces to reduce or redirect noise was not studied and is beyond the scope of this plan. If compliance with applicable noise regulations is not achievable through the existing mechanisms, i.e., agreements, monitoring, and penalties, a study should be conducted to evaluate structural or technical solutions.

RELATIONSHIP OF THIS PLANNING EFFORT TO OTHER PROJECTS

Many park management and resource protection issues, such as water quality, transportation systems, and viewsheds that relate to park activities transcend park boundaries and may affect or be affected by the park programs.

It is the policy of the Department of the Interior and the National Park Service to take the initiative to work cooperatively with others to anticipate, avoid, and resolve potential conflicts. Such management requires long-range planning, accurate scientific data, a sensitivity to cross-boundary effects of management decisions, as well as a commitment to cooperate in the identification and implementation of regionally coordinated management strategies.

The National Park Service will continue to review documents related to regional land use proposals in order to discern potential impacts on park values and patron enjoyment and to identify impacts the park may have on the surrounding community.

The National Park Service will also continue to involve other jurisdictions in planning for Wolf Trap Farm Park.

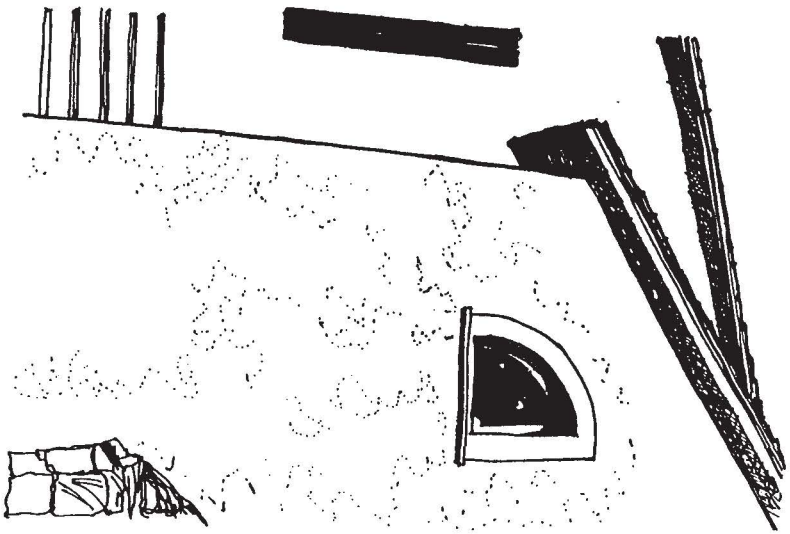
The following documents have been considered in development of this plan.

Dulles Corridor Transportation Study, Major Investment Study - Virginia Department of Rail and Public Transportation

Dulles Access Toll Road/Route 267 Improvements - Virginia Department of Transportation

The Comprehensive Plan for Fairfax County, Virginia (1991) - Fairfax County

Fairfax County Park Authority Comprehensive Plan (1994) - Fairfax County Park Authority



THE ALTERNATIVES

ELEMENTS COMMON TO ALL ALTERNATIVES

The following actions or policies would apply to management of Wolf Trap Farm Park regardless of the alternative selected.

CIRCULATION

The existing roadway network would continue to provide the major access to the park via the Dulles Toll Road from the south to Trap Road and via Leesburg Pike (Virginia 7) from the north to Towlston and Trap Roads.

PARKING AND PEDESTRIAN CORRIDORS

The Virginia Department of Rail and Public Transportation is considering the expansion of Metro rail service from the West Falls Church Washington Metropolitan Area Transit Authority rail station to the Washington Dulles International Airport along the Dulles Toll Road corridor. The expansion could include provisions for a station at Trap Road for performances at the park. However, construction of a Metro rail stop would require NPS and foundation funding. Public transportation funding is not available for a stop at this location because the area would be served by stops at Tyson's Corner and Reston. Estimates for a stop at Wolf Trap indicate costs could exceed $15 million.

Because the costs of construction of a Metro rail stop at Wolf Trap Farm Park would be prohibitive, the National Park Service would not rely on such service to alleviate parking pressures in the park. However, the National Park Service would actively promote ridership to or parking of private vehicles at the stops at Tyson's Corner and Reston. From those locations, patrons would board Metrobuses to the park. Ridership to Wolf Trap performances using a Metrobus is difficult to predict. Estimates of potential ridership are 10% of the total performance capacity or 700 patrons. Actual ridership could be much lower. Currently 2.1% arrive by Metrobus. The degree to which buses would be used and accommodated would vary by alternative.

Wolf Trap Foundation representatives have stated that current patrons are unlikely to embrace public transportation. However, improved accessibility from the District of Columbia might help diversify the concert-going population at Wolf Trap.

Existing pedestrian walkways would be replaced with wider walkways to improve pedestrian safety.

VISITOR AND PATRON FACILITIES

The capacity of the Filene Center is 7,000 patrons. This includes tickets for seats in the theater and for general admission to the lawn area. Under all alternatives, the maximum ticket sales capacity would be fixed at 7,000, although up to 500 additional people from park or foundation staff, and those associated with performances, are routinely present.

The Wolf Trap Foundation has expressed a desire to winterize and finish the interior of the rehearsal hall, which is in the rear of the backstage area of the Filene Center. The

upgrades to this portion of the performing arts complex would enable the foundation to improve rehearsal space. Actual performances would not be held here. This improved area would not affect the overall park infrastructure.

Under all alternatives, an additional comfort station would be constructed adjacent to the new concession stand on house right to serve disabled patrons who are seated in new accessible covered house seating.

The haybarn has been studied for conversion to public uses. It was determined to be unsuitable for conversion and would remain as storage or unused.

Use of the meadow was studied, especially for construction of permanent or semi-permanent covered pavilions or tented areas for parties. Because of the visual importance of this meadow to the preservation of the country atmosphere, its distance from comfort stations, and the desire to centralize high use activities, the meadow is not recommended for more intense use than it currently experiences, nor should permanent structures be added. An exception that may occur would be improvements to the existing concert shell in the cove located to the north of the meadow.

The meadow would not be used to increase capacity of Filene Center performances under any alternative.

Two facilities in the park have been set aside for the use of those who have made donations to benefit Wolf Trap. Those are the Encore Circle at the log shelter, and the large deck at the Wolf Trap Associates building. Under all alternatives, those improvements would remain.

LIGHTING IMPROVEMENTS

Under all alternatives, an overhead pedestrian lighting system would be installed along all major pedestrian corridors. The lighting system would provide different levels of light intensity. During a performance the lights could be kept at a low intensity thus preserving the night sky experience. At the end of the performance the pedestrian lighting system could be turned up to a higher intensity.

The pedestrian lighting system would be designed so that the sidewalks, but not the internal roads, were illuminated. Since the lighting system would be installed on major pedestrian paths, the lighting could be used to direct the patrons along the desired routes and therefore encourage the proper pedestrian travel patterns. The lighting system would be designed with shielded luminaries that direct the light towards the ground.

NOISE

A study of noise generated by the performers, the audience, and traffic was conducted. The results are included in the "Affected Environment" section. Under all alternatives, the park and the foundation would strive to meet applicable noise regulations. Contracts with performers now include and would continue to include agreements to adhere to maximum allowed decibel levels and penalties for violating them.

ADMINISTRATION

Under all alternatives, the farmhouse would continue to be used for NPS administration

of the park. No modifications would be undertaken.

CULTURAL RESOURCE MANAGEMENT

Research of the farm's history, use, and setting has been conducted. Although the setting and feeling of the farming history of the site may be present in portions of the park, the physical elements and use of the land as a farm no longer exist. In 1996, the National Park Service evaluated the structures at Wolf Trap and prepared a determination of eligibility for the National Register of Historic Places. The National Park Service, in consultation with the Virginia state historic preservation officer, has determined that the structures are not eligible for listing on the national register.

Under any of the alternatives, the National Park Service would continue to manage the buildings and structures in the farm area according to NPS policies and guidelines. To protect and preserve the ambience of the rural setting, the appearance and physical condition of these structures would be maintained. Any future additions within the area would be compatible with the feeling and visual setting of the farmstead. This would include placement, architectural style, and color. All structures open to the public would be made accessible to the public and park employees in accordance with the directives of the Americans with Disabilities Act.

Prior to any ground-disturbance, archeological surveys would be performed to determine the presence of any archeological sites or resources. Subsequent construction involving any ground disturbance would be monitored and if any archeological resources were discovered, construction activities would be ceased until a survey could be conducted.

Although the park has a small curatorial collection, possible future acquisition may include artifacts that pertain to the performing arts. The artifacts and archives would be managed under NPS standards and guidelines for protecting the resources and information. They would be exhibited and stored in appropriately controlled environments with protection against climatic concerns, pest infestation, theft, and vandalism. They would be examined on a routine basis to ensure their proper preservation.

As Wolf Trap Farm Park was established for the performing arts and hosts a wide variety of performances, the park is frequented by visitors from all ethnic backgrounds. Cultural conservation involves the identification, documentation, protection, and encouragement of folklife and culture. Unlike historic preservation, which primarily focuses on tangible and material resources, cultural conservation is concerned with the values and ways of life of a culture. The performances at Wolf Trap are the basis of this resource. An important goal is to understand, appreciate, and maintain cultural diversity.

BOUNDARY ADJUSTMENTS

Wolf Trap Farm Park is surrounded by suburban development and the Dulles Toll Road. The park includes woods that serve not only as backdrop but as a buffer between activity in the park and surrounding neighborhoods. The boundaries and size of the park are appropriate. No changes are proposed under any of the alternatives.

TELECOMMUNICATIONS

Bell Atlantic Mobile currently has a five-year lease for the placement of antennas on the roof of the Filene Center. Renewal of this use and decisions on future similar requests should be based on findings of no detrimental impacts, visual or operational, to Wolf Trap's character and performances.

FUTURE PLANS AND STUDIES

Several studies and plans would be required for protecting, preserving, and managing the cultural resources in Wolf Trap Farm Park. These studies and plans assist managers in making decisions in managing and protecting these resources in the future. The information in these reports and studies would be an adequate database for preserving and maintaining the cultural resources within the park.

- comprehensive site history
- comprehensive archeological survey within park boundaries
- formal cultural landscape assessment

ALTERNATIVE 1 (CONTINUATION OF CURRENT MANAGEMENT PRACTICES)

CONCEPT

The concept of alternative 1 would be to continue to provide the best possible performance experience within the existing infrastructure. No major modifications to structures or parking and circulation facilities would be made. Improvements in safety, security, and routine maintenance would be undertaken as funding became available. See the Alternative 1 map.

Under this alternative, the park would continue to experience parking and circulation problems, and patrons' frustrations would continue because not all cars arriving at many performances could be accommodated.

Pedestrian confusion and conflicts with vehicles likely would continue. Aesthetic and functional issues in the box office plaza area would be unresolved.

CIRCULATION

The existing roadway network would continue to serve local and regional travelers in providing access to the park. It is expected that 65–70% of concert patrons would continue to arrive via Trap Road at the south entrance to the park with most using the Dulles Toll Road. The remaining 30–35% of the patrons would arrive through the north entrance on Trap Road using the Leesburg Pike (Virginia Highway 7) and Towlston Road.

Over 95% of concert patrons would continue to arrive by private vehicle. The remaining would arrive by Metrobus, tour bus, taxi, and walking.

The approach roads would continue to accommodate traffic to and from the park adequately. However, during concert times there would be congestion on Trap Road at entrances to the parking areas from about 30 minutes before to 10 minutes after a performance starts. Congestion would be aggravated by vehicles being turned away at the entrance once the parking capacity was reached. Congestion would also continue up to 55 minutes after concerts when traffic exits to the south over the bridge over the toll road to gain eastbound access to the toll road. Northbound traffic would use Towlston Road to access Leesburg Pike with resultant delays along Towlston Road and the intersection of this road and Leesburg Pike.

PARKING AND PEDESTRIAN CORRIDORS

The ongoing effort to promote the use of public transportation would be accelerated; however, no additional lanes for more efficient movement of buses would be created.

The west parking lot would be resurfaced and restriped. Minor expansion or realignments of lots and interior roads might be undertaken, but labor intensive management of parking remains the primary parking strategy.

Parking on the sidewalks would not be allowed.

Parking would continue to begin about two hours before concert time. NPS staff would continue to direct drivers to several separate parking areas simultaneously throughout the evening loading process. The staff would continue to direct cars to the large grass areas first because the early traffic arrives at a slow uniform rate, which works well with the relatively slow loading time associated with parking in large grass areas. After the large grass areas are full, the remaining vehicles would be directed to the paved lots. Finally, the small grass parking areas would be filled, and vehicles would be allowed to park on the shoulders of Trap Road.

Only as a last resort, when all of the onsite parking areas are filled, patrons would be turned away from the entrance, causing them to park in the nearby residential neighborhoods.

The sidewalk along the main road inside the park would be widened from 12 to 20 feet and properly illuminated to increase pedestrian capacity and safety. This improvement would require some earthwork and the relocation of a split- rail fence.

A pedestrian barricade or a split-rail fence would be installed from the east end of the pedestrian tunnel extending up the path to main road. The barricade or fence would be installed behind the curb and extend south along the main road to the pedestrian crossing on the south side of the intersection at Barn Road. A 20-foot-wide pedestrian crossing would be delineated with pavement markings, and it would be illuminated. This would reduce the number of pedestrian/vehicular conflicts when pedestrians are crossing the roadway to and from the pedestrian tunnel.

A pedestrian crossing with appropriate signs would be delineated on the main road between the east parking lot and the Filene Center to reduce pedestrian/vehicular conflicts.

Concert patrons would be discouraged from parking on the south side of the toll road unless an adequate pedestrian walkway was installed on the bridge by the state of Virginia.

VISITOR AND PATRON FACILITIES

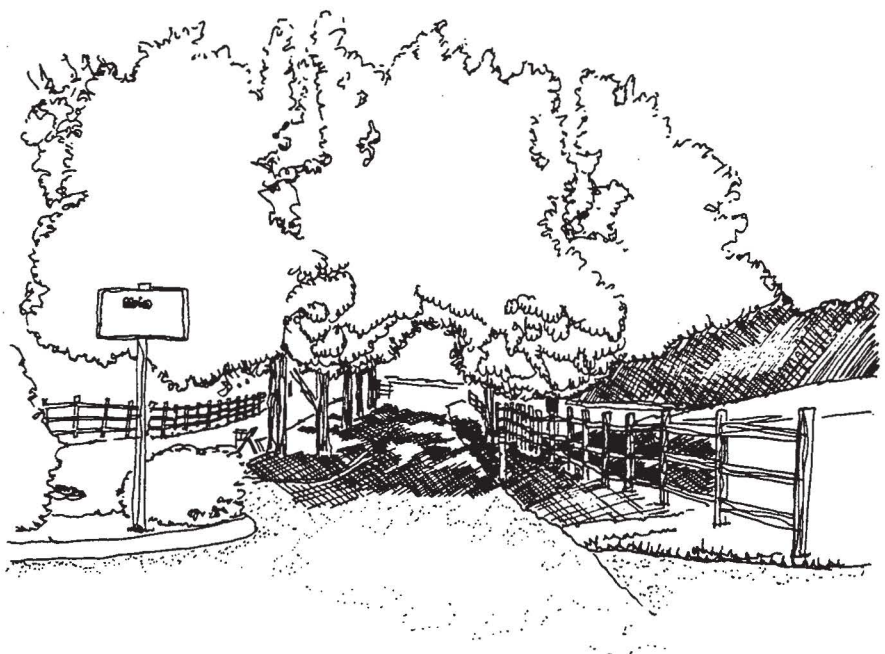
Existing comfort stations and concession facilities would undergo minor upgrades for capacity and accessibility.

FREQUENCY OF PERFORMANCES AND DURATION OF THE SEASON

The current park infrastructure cannot accommodate sold-out performances. Stress is placed on the park's resources and on the neighborhoods on those occasions. Therefore, neither the number of performances nor the length of the season would be expanded under this alternative.

EDUCATION AND INTERPRETATION

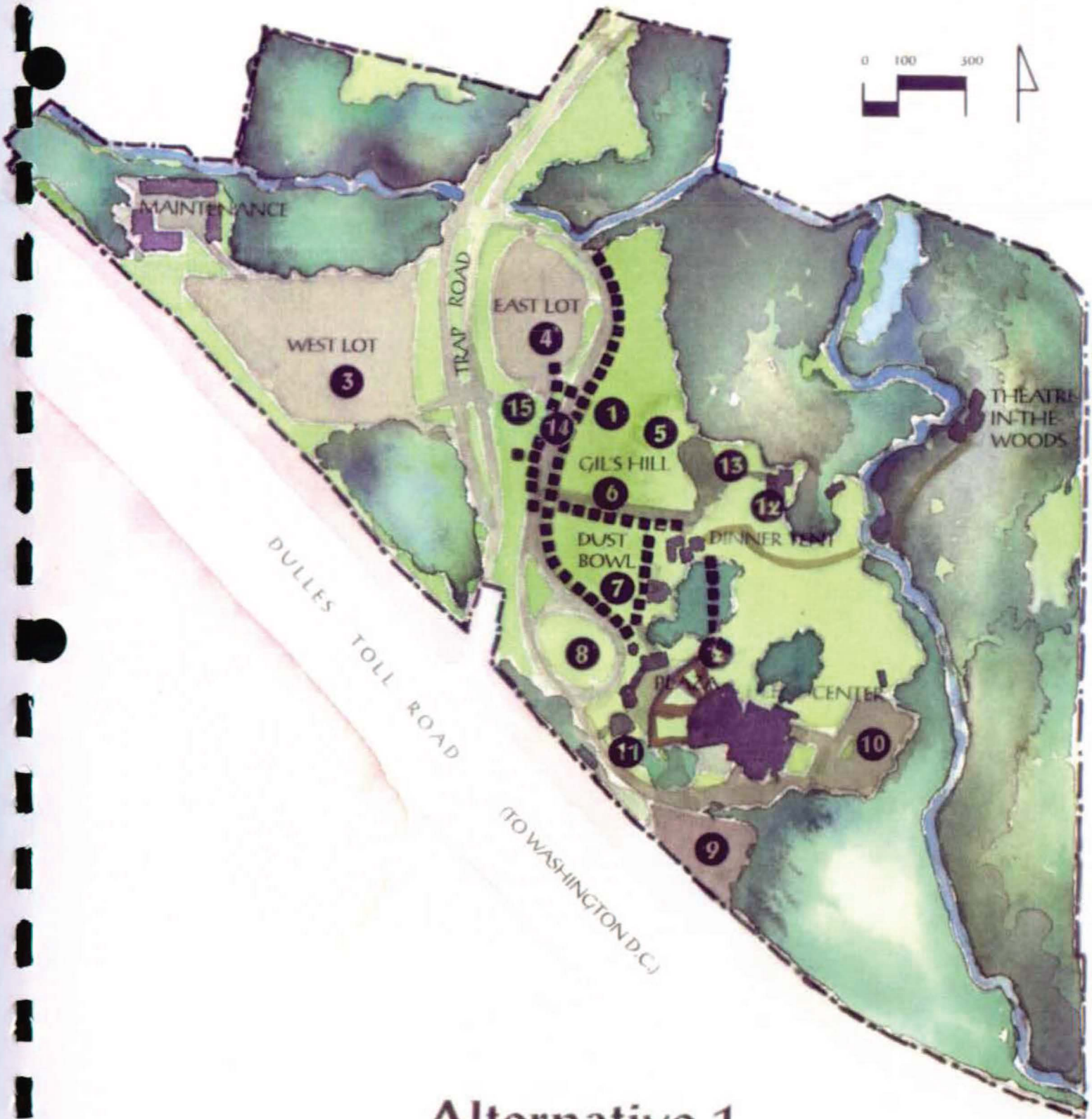
Under alternative 1 existing programs would continue with minor expansion and improvements as funding and staffing become available. The National Park Service would continue to work toward implementation of the *Interpretive Management Plan* approved in September 1993. That plan recommends that the primary medium employed in the interpretive



ALTERNATIVE 1

ALTERNATIVE 1
LEGEND

1. Demolish existing walks and construct new 12-foot concrete walkways with upgraded lighting
2. Restrooms at north concession
3. West parking lot (900 spaces)
4. East parking lot (350 paved spaces/100 median spaces)
5. Gil's Hill parking (650 spaces)
6. Gil's Hill mass parking (60 spaces)
7. Dust bowl parking (210 spaces)
8. Dimple parking (126 spaces)
9. Accessible lot parking (50 spaces)
10. Loading dock parking (138 spaces) and Filene Center drive-through (6 spaces)
11. Stage road parking (6 spaces)
12. Associates lawn parking (45 spaces)
13. Parking lot #3 (30 spaces)
14. Tunnel mass parking (38 spaces)
15. Marquee mass parking (23 spaces)



Alternative 1

(No Action)

Wolf Trap Farm Park

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ON MICROFILM

ON MICROFILM

program would be personal services such as tours, talks, and performances. The education and interpretation activity schedule would remain similar to existing programs, although the frequency of presentation may change, and activities could be offered in the off-season if additional funds become available. House and theater tours may still be offered upon request, and a variety of children's programs and pre-performance previews would continue to be offered by selected performers. Until additional funding is approved for personnel services, interpretive staff would continue to spend a significant amount of time during the performance season on traffic and parking duties at the expense of interpretive and educational programs.

ADMINISTRATION, OPERATIONS, AND SAFETY

Safety and operations facilities would be upgraded as needed to meet minimum standards for space, efficiency, and safety requirements in existing locations. Administration functions would remain in the existing farmhouse.

ESTIMATED DEVELOPMENT COSTS

Estimated development costs for alternative 1 are shown in appendix B.

MITIGATION MEASURES

Mitigation measures would be developed through the design aspects for alternative implementation. Onsite monitoring of the soil conditions would continue in areas where vehicles are parked in grass areas during major events. These efforts would ensure that proper vegetative cover was present to reduce the potential of soil erosion during hot, dry periods and during major storm events. Vehicles would be restricted from these areas when problems were detected.

Retention basins could be constructed, if needed, to retain excessive surface water runoff during major storm events. These actions would lessen the intense surface inputs directly into the stream channel reducing the potential of stormwater surges and increased erosion in the floodplain. The potential for flood periodicity and magnitude would thereby be reduced.

ALTERNATIVE 2

CONCEPT

The concept of alternative 2 would be to absorb all parking on paved lots within the park boundaries and at an offsite parking area served by a shuttle system. Several level areas with good access to existing roads within the park would be paved and striped for parking. Grass areas currently used for parking would be paved and striped for safe and orderly parking. See the Alternative 2 map.

The country character of the park would be partially compromised to improve patron convenience, services, and safety, and to minimize parking impacts on surrounding neighborhoods.

CIRCULATION

As in alternative 1, the existing roadway network would continue to serve the park. The addition of directional signage would reduce patron confusion of parking locations.

PARKING AND PEDESTRIAN CORRIDORS

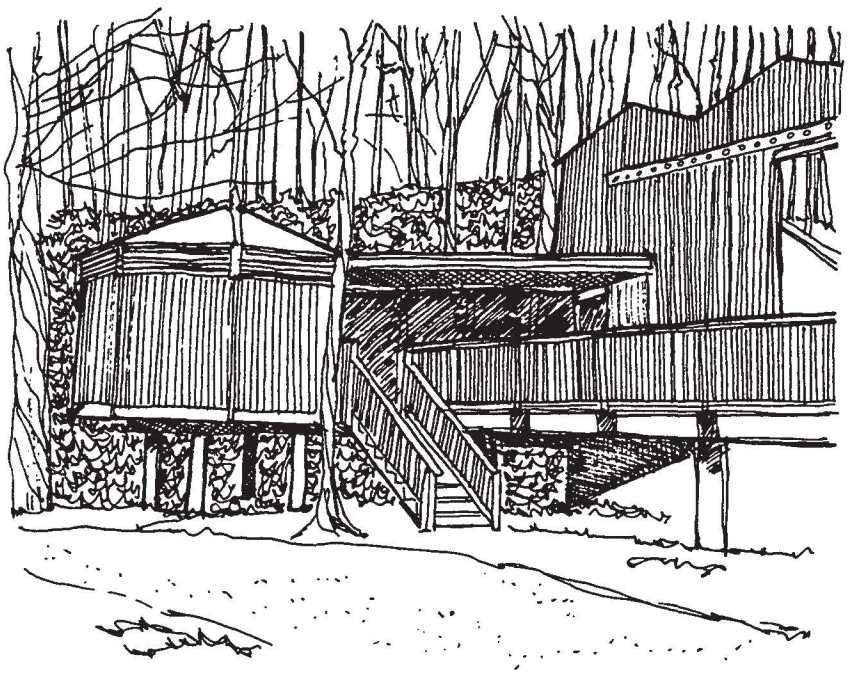
Parking Areas

The grass areas currently used for parking known as Gil's hill, the dust bowl, and the dimple all would be regraded, paved, and striped (see the Alternative 2 map). The existing east and west parking lots would be slightly expanded, repaved, and restriped to allow delineated parking spaces, which would provide a more organized parking system. In addition, several new parking areas would be added. One would be located along Wolf Trap Run at the bottom of Gil's hill. Another lot would require the removal of approximately 250 trees east along the crest of Gil's hill. The grass area in the dimple at the circle drive would be filled in and paved to accommodate cars. A landscaped berm would be constructed along Trap Road at the east side of the west parking lot to shield the view of the lot. Parking along Trap Road would not be allowed.

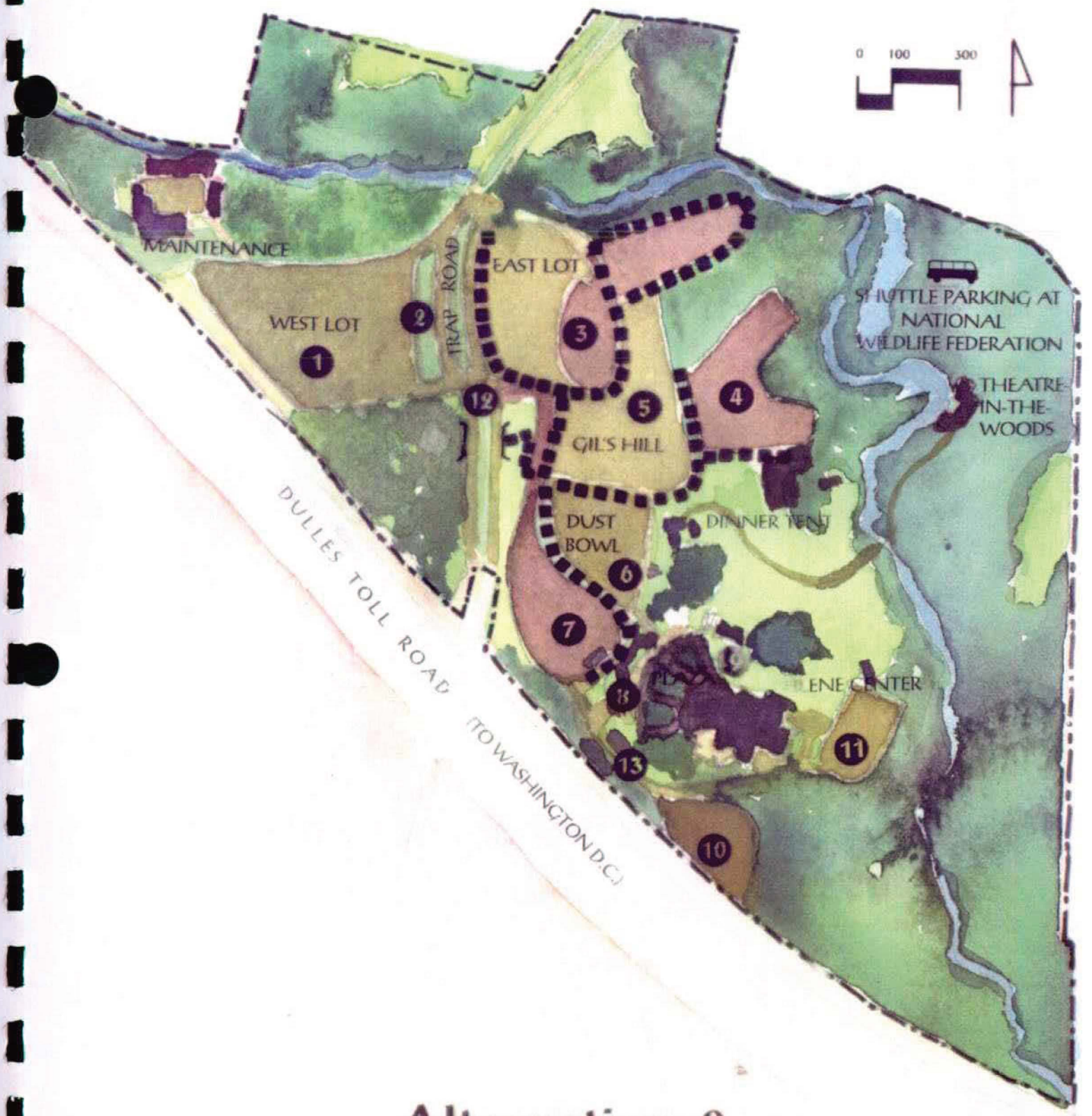
The difficulties being experienced with grass parking such as mud, slippery grass, and damage to the grass would be eliminated. Striped lots would reduce the high numbers of staff needed to direct cars and would provide safe, designated pedestrian aisles. The net increase in spaces of this alternative over alternative 1 would be 270. This is approximately 230 spaces fewer than are required by a sold-out performance.

Remote Parking with Shuttle

Use of a remote parking area outside the park and a shuttle service would accommodate the balance of cars during sold-out performances. It would also mitigate the overflow parking impacts on the residential neighborhoods. The location of this remote parking facility would be critical to the effectiveness of the shuttle system. The site should be as close to the park as possible and have good access to the major routes. It would be preferable to enter into a shared use agreement with a nearby business or organization that already has a parking lot of the desired size. The business or



ALTERNATIVE 2



Alternative 2

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organization would use the parking area during the normal daily business hours, and the park would use the space in the evenings when large attendance performances require additional parking space.

The best remote parking location that would be feasible for the shared use concept would be at the National Wildlife Federation building. The National Wildlife Federation is about 1/2 mile east of Towlston Road on Virginia Highway 7. This parking lot could accommodate up to 350 vehicles. This is the magnitude of the offsite parking needs with the parking improvements described later in this alternative. A cooperative agreement with the National Wildlife Federation would be required. Federation management has indicated they would be receptive to such an arrangement.

The shuttle system would transport users to and from the park with a shuttle stop at the park on the east side of Trap Road between the two main intersections. This location would allow the shuttle buses to recirculate quickly with minimum stop time, as traffic conditions allowed. A lighted shelter would be provided for those waiting for the bus.

The shuttle fleet would include ten 50-passenger buses to carry an estimated 1,000 passengers between the National Wildlife Federation and Wolf Trap Farm Park. The demands on the shuttle system would usually be within a relatively short time period. Before the concert the overflow parking area and the shuttle system would not be needed until the park fills to capacity. The patrons likely would not begin to park at the overflow parking site until a few minutes before performances. Therefore, the shuttle service would have to be efficient and timely so that patrons could arrive at the beginning of the concert.

Upon the finish of sold-out performances, shuttle buses would be staged along incoming lanes of park roads and at the bus loading area. Shuttle buses would have to compete with other vehicles departing from the performance. The time required to return to the shuttle lot likely would range between 20 minutes to one hour.

Although there is an abundance of parking in the Tyson's Corner area, it is doubtful that a remote parking area that far from the park would function well as an overflow parking area. If the remote parking area were located at Tyson's Corner, the round-trip travel time would be 40 minutes. The service would require twenty 50-passenger buses to accommodate the estimated 1,000 passengers.

The cost of providing shuttle service to the National Wildlife Federation location is estimated at $280 per bus per evening or about $2.80 per round trip ride. This amounts to $84,000 per season, but it does not include any fee per bus for using the National Wildlife Federation parking area. If the remote parking site were at Tyson's Corner, the annual cost would be $112,000 or about $5.60 per round trip ride. This also does not include the cost of using the parking area or facility.

It would be important to fund the shuttle service from the proceeds of general ticket sales. A fee to the shuttle user would be a disincentive to the use of the system.

Traffic control staff and changeable traffic signs would be provided to direct patrons to the remote parking area when onsite parking areas were near capacity. Staff would be required onsite and at the remote site to manage parking operations.

Shuttle buses may not work well for those patrons carrying large coolers, lawn chairs, and picnic baskets because of space limitations on the bus. Another drawback is that the buses would travel on the same roads as all of the other vehicles trying to enter or leave the park. The buses would have to contend with traffic congestion and resulting delays.

A final concern related to the use of a shuttle service designed for Wolf Trap performances is scheduling and feasibility. If the shuttle service were to serve overflow parking for sold-out performances, the National Park Service would have to be able to predict with a degree of certainty on which nights the shuttle service would need to be implemented. This prediction should occur early enough to inform patrons of the parking options so that they may plan their commute to the park accordingly. Otherwise, the latest arrivals to a performance would be the ones directed to the remote lot, adding still more time to their late arrival.

Another option would be to require employees and volunteer ushers to use the shuttle system on nights of maximum ticket sales. This option would require close coordination with workers.

Under either option, coordination and costs of drivers and vehicles with such an erratic schedule would be problematic.

Other Improvements

The improvements in parking and pedestrian walkways described in alternative 1 would also apply to alternative 2. In addition, pedestrian walkway improvements would be made in the plaza area (approach to the Filene Center). A shuttle bus loading and unloading area would be added on the east side of Trap Road.

Pedestrian circulation paths leading from the newly paved parking areas would provide for additional formalization and delineation of pedestrian movements. However, the conflict between pedestrians and vehicular traffic along internal roadways would be an issue in this alternative, with increased parking onsite. The construction of the berm at the west lot may inhibit haphazard pedestrian crossing of Trap Road from the west lot.

In addition to the lighting improvements described in the "Actions Common to All Alternatives" section, adjustments would be made in conjunction with the improvements in the box office plaza area and the shuttle bus loading/unloading area.

VISITOR AND PATRON FACILITIES

Under this alternative, the box office plaza area would be upgraded to improve services, aesthetics, safety, and efficiency. The profile of the existing buildings would not be increased in height due to the acoustical constraints associated with sound reflecting off the structures. However, comfort stations and concession capacity could be added as needed.

FREQUENCY OF PERFORMANCES AND DURATION OF THE SEASON

Provision for adequate parking and improved park infrastructure would be in place to completely accommodate sold-out performances. Increasing the frequency of performances or the duration of the season

would not conflict with the purpose or objectives of the park, and therefore would not be precluded by this plan. However, the total number of performances and extension of the season would have impacts associated with staffing and operations costs. Either action would require decisions by park management based on these considerations.

EDUCATION AND INTERPRETATION

Recommendations in the *Interpretive Management Plan* (1993) described in alternative 1 would be implemented to the extent available funds and staff allowed. Park staff would work with the Wolf Trap Foundation and other potential partners to find additional sources of talent, ideas, and money to complete the *Interpretive Management Plan* program and media recommendations and to develop additional activities to educate the public on the performing arts. Significant programs, such as Masters Classes and Affiliate Artists Program, that were discontinued due to lack of funds would be revived, and Backstage at Wolf Trap, a new program recommended in the interpretive plan would be implemented. The Backstage at Wolf Trap program might also be enhanced by an audiovisual production that documents backstage activities. A backstage exhibit would display objects donated by performers who have appeared at Wolf Trap. Exteriors of farm structures would be maintained and the surrounding meadows, hills, and forests would continue to provide a country setting that enriches visitor experiences and the story of Wolf Trap's history.

ADMINISTRATION, OPERATIONS, AND SAFETY

As in alternative 1, safety and operations facilities would be upgraded as needed to meet minimum standards for safety and space requirements in existing locations. Administration functions would remain in the existing farmhouse.

ESTIMATED DEVELOPMENT COSTS

Estimated development costs are shown in appendix B.

MITIGATION MEASURES

Mitigation efforts that would be a part of this alternative include the following:

(1) redistribution of parking in the area

(2) use of remote parking area to accommodate up to 350 vehicles and use of shuttle buses to transport patrons from the parking area to and from the park

(3) use of park staff and changeable traffic signs to direct patrons to the remote parking area when the onsite parking areas are near capacity; requirement of staff to be onsite and at the remote site to manage parking operations

These mitigation measures would reduce the total number of vehicles outside the park boundary to a minimum of between 325 and 375 vehicles. Traffic congestion within the immediate area would also be somewhat relieved through the deployment of offsite parking assistance provided by NPS staff

and the reduction of vehicles seeking parking in the surrounding neighborhoods. However, many vehicles using the remote lot would have been turned away at the entrance and would have contributed to congestion there.

Water resource values would be protected through design of gradients for surface water flow. Point discharges through culverts would not be used, but rather slopes would be designed to accommodate sheet flow from these areas. Retention basins could be constructed, if needed, to retain excessive surface water runoff during major storm events. These actions would lessen the intense surface inputs directly into the stream channel reducing the potential of stormwater surges and increased erosion in the floodplain. The potential for flood periodicity and magnitude would thereby be reduced.

ALTERNATIVE 3

CONCEPT

The concept of alternative 3 would be to accommodate vehicles and pedestrians in safe, separate areas within the park, and to upgrade support facilities to be in more concert with the Filene Center. This would involve construction of a parking structure onsite to absorb performance-generated parking, the elimination of grass parking, the creation of a safer and more dramatic approach to the Filene Center, and the redesign of the box office plaza area for patron and visitor services, safety, and appreciation and understanding of the performing arts. The intent would be to separate vehicular traffic from pedestrians, to capitalize on the country setting and the ambience, and to reduce the visual interference of support facilities. See the Alternative 3 map.

CIRCULATION

Currently, vehicles and pedestrians compete for roadway from the park's main entrance to the box office plaza. Cars are parked on the grass and walkways, as well as in designated lots. The hour before the performances and immediately after final applause, all surfaces, paved and unpaved, are a mass of moving vehicles and pedestrians. In alternative 3, vehicles and pedestrians would be separated.

Upon entering the park at performance time, vehicles would be directed to either the new parking structure located at the west lot or to the existing east parking lot. Exceptions would be disabled patrons, who would proceed to accessible parking near the Filene Center.

A bus drop-off for public transportation also would be constructed at the plaza area.

PARKING AND PEDESTRIAN CORRIDORS

Parking for the disabled and an area for passenger disembarkation would be the only performance time access permitted. Vehicles would be all but removed from the box office plaza area.

The new parking structure, the east lot, the accessible lots, and the stage lot would provide the spaces required for peak concert use, eliminating the parking from the adjacent neighborhoods. The parking that currently exists at the dust bowl and Gil's hill would be relocated to the garage.

The new parking structure would be constructed on the west parking lot, which currently contains 900 parking spaces. These 900 spaces would be lost; thus, the parking structure would need to accommodate 2,800 vehicles (1,900 + 900). If the structure were designed for four levels, it would have a footprint of about 5 acres. This size of structure would fit within the existing west parking lot footprint. The topography of the site lends itself to an aboveground structure that could be built against the hill to the south.

Donor parking would be in specially designated and appointed spaces in the structure, from which cart service would be available to all patrons who wished to use it.

Access to the parking structure would be from Trap Road. The structure would have vehicle access ramps on at least two different levels. The two vehicle access ramps to the structure would come directly off Trap Road. Each of these access ramps would be designed with at least two lanes that traffic can approach or leave the garage two at a time from each access port.

A vehicle ramp would be constructed to exit the structure westbound directly to the toll road. The ramp would exit the garage at the top level, which is within a few feet of the elevation of the adjacent toll road. It is estimated that the ramp would fit within the existing right of way. The location of this new egress ramp is depicted on the Alternative 3 map. Eastbound traffic exiting the structure would leave the park using the same routes that are currently used.

It would be desirable to widen the bridge and the eastbound access ramp onto the toll road as well as add a lighted pedestrian walkway to the bridge structure. Both Trap Road and the access ramp are the responsibility of the state. The state is not currently planning improvements to these facilities.

The existing pedestrian tunnel under Trap Road would lead directly to the lower two levels of the parking structure. An additional pedestrian tunnel from the structure under Trap Road would be required. The tunnel should be 20 feet in width in order to handle the anticipated pedestrian traffic volumes. The new tunnel would connect to a pedestrian path leading to the upper two levels of the structure (see the Alternative 3 map). This combination of tunnels would accommodate the pedestrian demand while eliminating conflicts with vehicular traffic on Trap Road. An elevator tower would be located in the southeast corner of the garage, allowing access for disabled persons to all floors of the facility.

Pedestrian routes would flow from the new parking structure through the tunnels to a newly created approach, a grand boulevard that passes through enhanced lawns, a newly planted orchard (at the dust bowl), and new groves for picnicking at Gil's hill, and on to the Filene Center entrance. The dimple area would be partially filled, realigned, and landscaped to provide a more pleasant pedestrian experience.

Rather than encountering the present-day rough-sawn wooden buildings, patrons would approach a large new landscaped berm over the top of which views of the Filene Center would rise. Patrons would pass through the berm on a paved walkway, present tickets inside the walkway, and enter a redesigned and resurfaced plaza.

In addition to the lighting improvements described in the "Actions Common to All Alternatives" section, an overhead lighting system would be installed in the new box office plaza area.

The parking structure would be well-lighted to direct pedestrians within the structure and to and from the Filene Center.

VISITOR AND PATRON FACILITIES

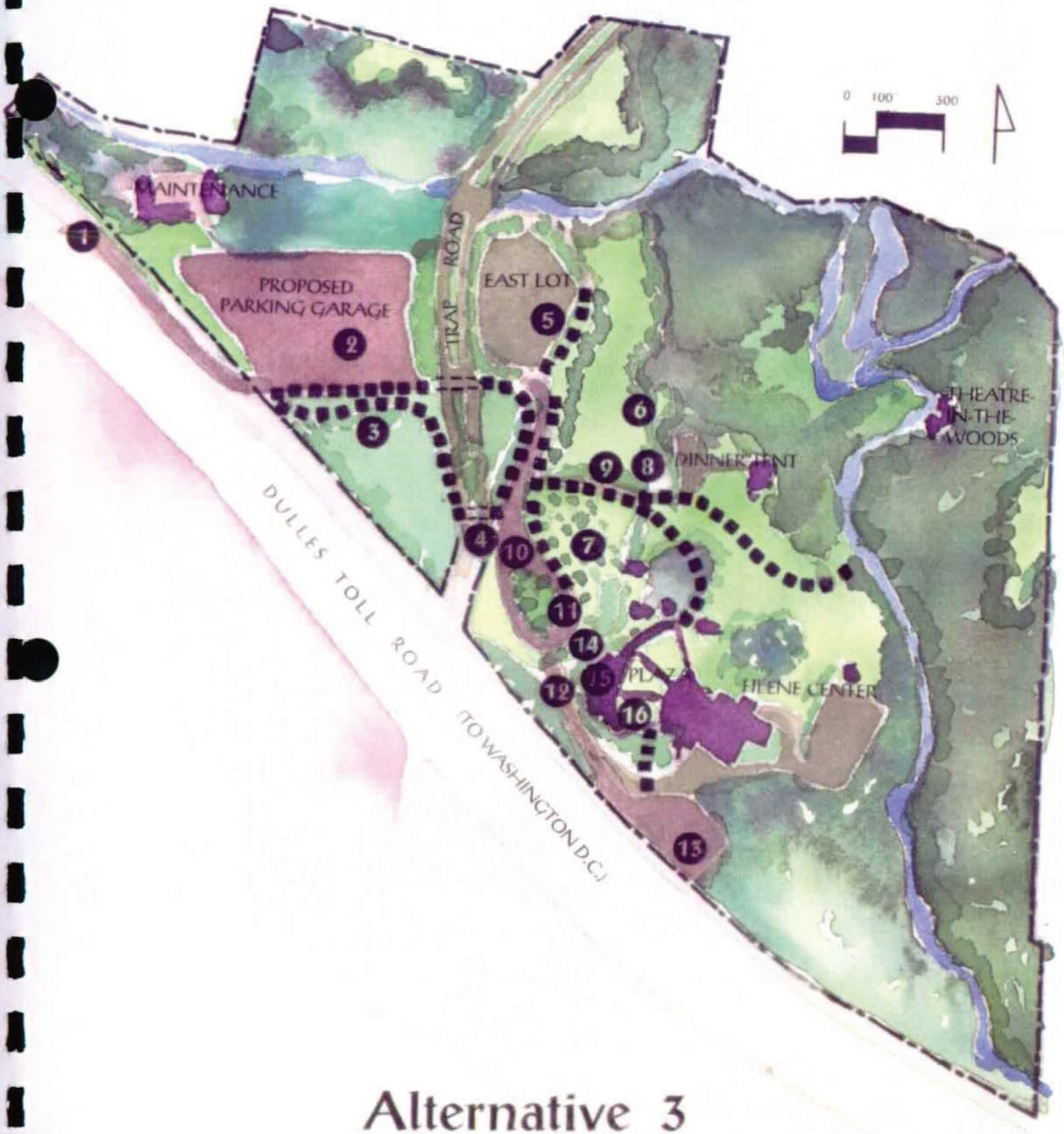
The existing plaza area would be replaced with a new plaza structure that would be built into a berm east of the dimple. Concessions, comfort stations, ticket sales, ranger activities, and park police would occupy space constructed inside the wings of the berm on either side of the pass through walkway. Patrons would be served



ALTERNATIVE 3

ALTERNATIVE 3
LEGEND

1. Construct exit ramp
2. Construct parking garage (2838 spaces)
3. Construct exterior walk from garage to tunnels and path
4. Construct new underground pedestrian walkway
5. Replace road east of east parking lot (350 spaces with pedestrian walkway)
6. Construct picnic area in reforested area at the top of Gil's Hill
7. Replace Dust Bowl with orchard
8. Relocate dinner tent
9. Existing service road
10. Fill portion of Dimple, reconfigure and resurface road, and landscape area
11. Construct bus drop-off
12. Existing road to accessible parking and loading dock parking (138 spaces) and Filene Center drive-through (6 spaces)
13. Existing accessible lot (50 spaces)
14. Construct bermed plaza building to include concessions, comfort stations, usher staging area, press office, ranger activities, and first-aid station
15. Replace asphalt with concrete and flagstone paving at plaza
16. Regrade and extend existing lawn seating



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from windows on the interior of the walkway and from the side of the berm facing the theater.

The plaza would be expanded and the lawn seating extended to achieve a more gentle angle than the existing angle. Lawn seating capacity would not be increased, but the comfort of the lawn patrons would be improved by the slope which, while gentler, still would afford good viewing over those in front.

Plaza asphalt would be replaced with natural stone-like paving. Interpretive exhibits and planters for flowers and shrubs would add interest while directing efficient movement of pedestrian traffic.

The concession area would be enlarged with tables and chairs for outdoor seating under an awning. Benches would be located along the retaining walls.

FREQUENCY OF PERFORMANCES AND DURATION OF THE SEASON

As in alternative 2, provision for adequate parking and improved park infrastructure would be in place to completely accommodate sold-out performances. Increasing neither the frequency of performances nor the duration of the season would conflict with the purpose or objectives of the park, and therefore would not be precluded by this plan. However, the total number of performances and extension of the season would have impacts associated with staffing and operations costs. Either action would require decisions by park management based on these considerations.

EDUCATION AND INTERPRETATION

In alternative 3, all concepts described in the 1993 *Interpretive Management Plan* would be implemented and expanded, including live performances, audience participation, related educational activities, and resource-based programs. Development of centralized parking and implementation of a parkwide trail/path plan would offer an opportunity shortly after patrons enter the park to welcome them and introduce the character of the Wolf Trap. Their walk to performance areas along grass-blanketed knolls and tree-clad hills would immerse patrons in the Wolf Trap performing arts experience — arts, artists, and an informal country setting.

Improvements in the box office plaza area would enhance patron experience with additional education and interpretation services. Staff time freed by elimination of personnel intensive parking activities would be used to present additional personal service programs. Exhibits and publications would be used to interpret the performing arts, the artist presenting the current performance, and the cooperative management between the Wolf Trap Foundation and the National Park Service that makes Wolf Trap quality programs possible. Backstage visitor activities would maximize exposure to the performing arts.

A subsequent implementation plan would describe how the National Park Service and the foundation can share talents to improve Wolf Trap educational and interpretive programs. The Park Service could contribute expertise such as visitor management and interpretation/education methods, and the foundation could contribute theatrical and performing arts knowledge and talents. Both parties cooperating fully in all aspects of Wolf Trap

operations authorized by legislation would be necessary to provide the desired level of visitor education and interpretive services in the anticipated future fiscal and personnel constraints. Consideration would also be given to using talents and resources of other groups and agencies as appropriate.

ADMINISTRATION, OPERATIONS, AND SAFETY

In this alternative administrative, operational, and safety functions with a direct link to visitor and patron services would be relocated to the new plaza building. This would include the box office, the press office, concessions, ranger services, and park police.

Other functions such as maintenance, the office of the director, and administrative staff would remain in existing locations.

ESTIMATED DEVELOPMENT COSTS

Estimated development costs for alternative 3 are shown in appendix B.

MITIGATION MEASURES

Mitigation efforts for this alternative include the following:

(1) elimination of parking within the surrounding neighborhoods

(2) elimination of 1,250 spaces currently used within the park (grass, roadway shoulders, etc.)

(3) restoration of impacted parkland--open lawn areas

Water resource values would be protected through design of gradients for surface water flow from the parking structure. Retention basins would be constructed, if needed, to retain excessive surface water runoff during major storm events. These actions would lessen the intense surface inputs directly into the stream channel, reducing the potential of stormwater surges and increased erosion in the floodplain. The potential for flood periodicity and magnitude would thereby be reduced.

Further mitigation for the development of the parking structure would be attained through the elimination of existing parking on grass areas. By restoring the grass areas to more permeable lawns and groves, runoff and erosion would be greatly reduced. Removing cars from the grass areas would also result in a more conducive park experience for patrons and park visitors. This would promote greater open space in a highly urbanized region and increase habitat for those species that prefer open space areas. Species abundance should increase.

Through design and plantings, the visibility of the parking garage would be minimized.

Other necessary mitigation measures would be developed through the design specification for alternative implementation.

ALTERNATIVE 4 (PROPOSED ACTION)

CONCEPT

The concept of alternative 4 would be to provide sufficient parking for all visitors within the park boundaries without substantial additional paving or structures. To achieve adequate parking space, approximately 3 acres of forested area would be cleared and a portion of the adjacent grass parking areas regraded. The existing paved parking areas would be repaved and striped to allow for maximum capacity. Pedestrian ways for all grass parking would be formalized with lighted walkways for safe and orderly passage. See the Alternative 4 map.

The approach to the Filene Center and associated areas would be redesigned to allow for better function and an appearance more complementary to the Filene Center.

The box office building and ancillary buildings at the plaza would be removed and replaced with a single-story structure that would consolidate all patron and visitor functions. Asphalt in the plaza would be replaced by a more natural looking surface.

This alternative requires the removal of trees from some forested areas and the regrading of hills. The rural feeling and country character of the site may be impacted by these alterations.

DEVELOPMENT CONCEPT PLAN

The following discussions on circulation, parking and pedestrian corridors, and visitor and patron facilities outline a development concept plan being proposed by the National Park Service to improve services related to parking and patron accommodations.

Circulation

The existing main entrance road would continue to function as an access into the park. However, it would no longer be a through-way access. The spur that currently accesses Gil's hill would be removed, and Barn Road would be reconfigured into the main pedestrian walkway to the theater area. A new vehicular paved access road (approximately 930 feet by 11 feet) would be constructed along the forested area on the east edge of Gil's hill to facilitate the exiting traffic after performances, Theatre-in-the-Woods performances, and daytime service deliveries. This would also reduce conflicts between Filene Center bound trucks and Theatre-in-the-Woods patrons.

As in the other alternatives, traffic control staff and directional signage at the south and north entrances of the park would be used to direct the flow of traffic and to park the cars. However, this alternative is the most staff intensive due to the additional grass parking areas proposed within park boundaries.

Parking and Pedestrian Corridors

Calculating maximum capacity for parking on unpaved, unstriped areas is difficult. Standard formulas have underestimated capacity in grass parking areas at Wolf Trap in the past. However, it is estimated that up to 3,300 cars could be accommodated in this alternative.

The grass areas currently used for parking — Gil's hill, the dust bowl, and the dimple (a total of approximately 14 acres) — would be expanded and reconfigured to accommodate more cars. The dimple would be filled in, and 3 acres of the forest to the east of Gil's hill would be removed. Gil's hill, the dust bowl, and the dimple would be cut, regraded, and stabilized to reduce the grade of the hill. Gentler grades would accommodate more cars and reduce incidences of cars slipping on wet ground during inclement weather. These areas would remain grass parking with turf stabilizers installed to reduce erosion and compaction of the ground.

The paved east and west lots would be repaved and restriped to provide easier and more unified parking. The west lot would remain the same dimension, but the east lot would be expanded and graded slightly. An exit from the east lot to Trap Road would be added.

Directional signage would separate the parking areas into general, permit, accessible, employee, and bus areas. General admission would be focused on the east and west lots, as well Gil's hill. The combination of all of these lots would accommodate approximately 2,600 cars. Approximately 600 spaces would be allocated for permit parking. This lot would be closest to the new plaza building and would serve the disabled, emergency vehicles, buses, and donors.

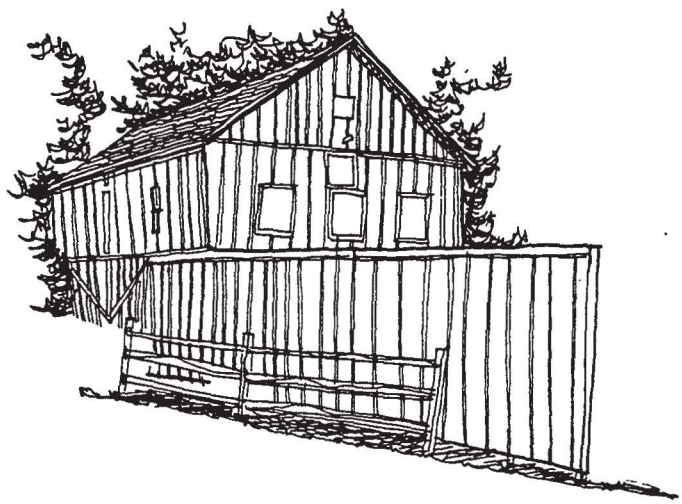
The south and west edges of the permit parking lot would be screened by new shade trees.

Pedestrian circulation within the park would be redefined to provide a more organized, safe access to the theater area. Patrons would be guided from parking areas to theater areas by lighted concrete and flagstone walkways. These walkways would provide a path system to draw patrons from vehicular roadways and dense parking areas. The main entrance to the theater area would be located at the top of Barn Road, which would be reconfigured to allow pedestrian, emergency, and cart access. Banners and planted berms would provide a visual and physical border for this walkway, which would extend from the tunnel under Trap Road to the theater entrance and would be approximately 30 feet wide and 300 feet long. A median strip would separate the pedestrian and cart functions. The walkway, which would have entries from Gil's hill and the permit parking lots, would lead directly to a redesigned plaza entering the theater area. There would be a cart pick-up at south end of east lot that also would tie into the pedestrian circulation.

The west lot, which is the farthest parking area from the Filene Center, would have a cart service to the theater area. A staging area, approximately 40 feet by 40 feet with a small shelter and benches, would be constructed for patrons awaiting cart pick-up. The walkway from this lot to the Barn Road walk would be widened. Native plantings, which would provide a vegetative buffer between the west lot and Trap Road, would discourage pedestrian crossing of Trap Road.

Visitor and Patron Facilities

Under this alternative, the plaza area would be reconfigured to better facilitate parking and pedestrian circulation and provide a more organized entry into the theater area. The new approximately 65-foot by 200-foot plaza would be paved with flagstone or



ALTERNATIVE 4

ALTERNATIVE 4
LEGEND

1. Landscape with shrubs to screen west parking lot
2. Repave and restripe west parking lot (900 spaces)
3. Narrow existing emergency access; construct small plaza with shelter and benches for cart pick-up
4. Redesign for pedestrian and emergency use only
5. Install grass pavers that will support traffic
6. Install directional signage to indicate lanes for permit parking, accessible, and all other parking
7. Reconfigure and restripe east parking lot (450 spaces)
8. Construct one-lane paved access road for dinner tent and Associates deck delivery
9. Clear approximately 3 acres for grass parking at top of Gil's Hill
10. Regrade for grass parking at Gil's Hill (1200 spaces)
11. Rehabilitate band shelter
12. Reconfigure employee parking (60 spaces)
13. Add lower deck to dinner tent for "bistro" clientele
14. Remove ranger booth at meadow bridge
15. Design and construct plaza at end of pedestrian area for cart pick-up
16. Relocate main pedestrian entry into park
17. Relocate gated entry plaza
18. Construct accessible/VIP entry at plaza
19. Regrade and extend existing lawn seating
20. Construct accessible lot (50 spaces)
21. Construct plaza building to include: concessions, comfort stations, staging area, press office, ranger activities, and first-aid station
22. Replace asphalt with flagstone and concrete paving at plaza
23. Retain loading dock parking (138 spaces) and Filene Center drive through (6 spaces)
24. Regrade and fill to accommodate grass parking at Dimple and Dust Bowl (approximately 550 spaces and 12 bus spaces)
25. Retain accessible lot (50 spaces)



Alternative 4

(Proposed Action)

Wolf Trap Farm Park

for the Performing Arts

ON MICROFILM

natural stone-like paving. The existing structures at the plaza area would be removed, and a new visitor services and ticketing facility would be constructed. This new structure would be architecturally compatible with the Filene Center and the site. The one-story design would incorporate plantings to aid as visual and acoustic buffers. The structure would house offices for ticketing, press, ushers, park police, concessions, comfort stations, first aid, and ranger activities.

The plaza would be expanded and the lawn seating extended to achieve a more gentle angle than the existing angle. Lawn seating capacity would not be increased, but the comfort of the lawn patrons would be improved by the slope which, while gentler, still would afford good viewing over those in front. See the Plaza Site Plan illustration.

The farm character of the site would be retained through the maintenance of the associated farm structures and the surrounding meadow and forested areas. However, a portion of this wooded area would be removed to facilitate the new parking area. In addition, some of the hills would be regraded to allow safe parking.

For more information about the development concept plan, see the Plaza Site Plan map.

Frequency of Performances and Duration of the Season

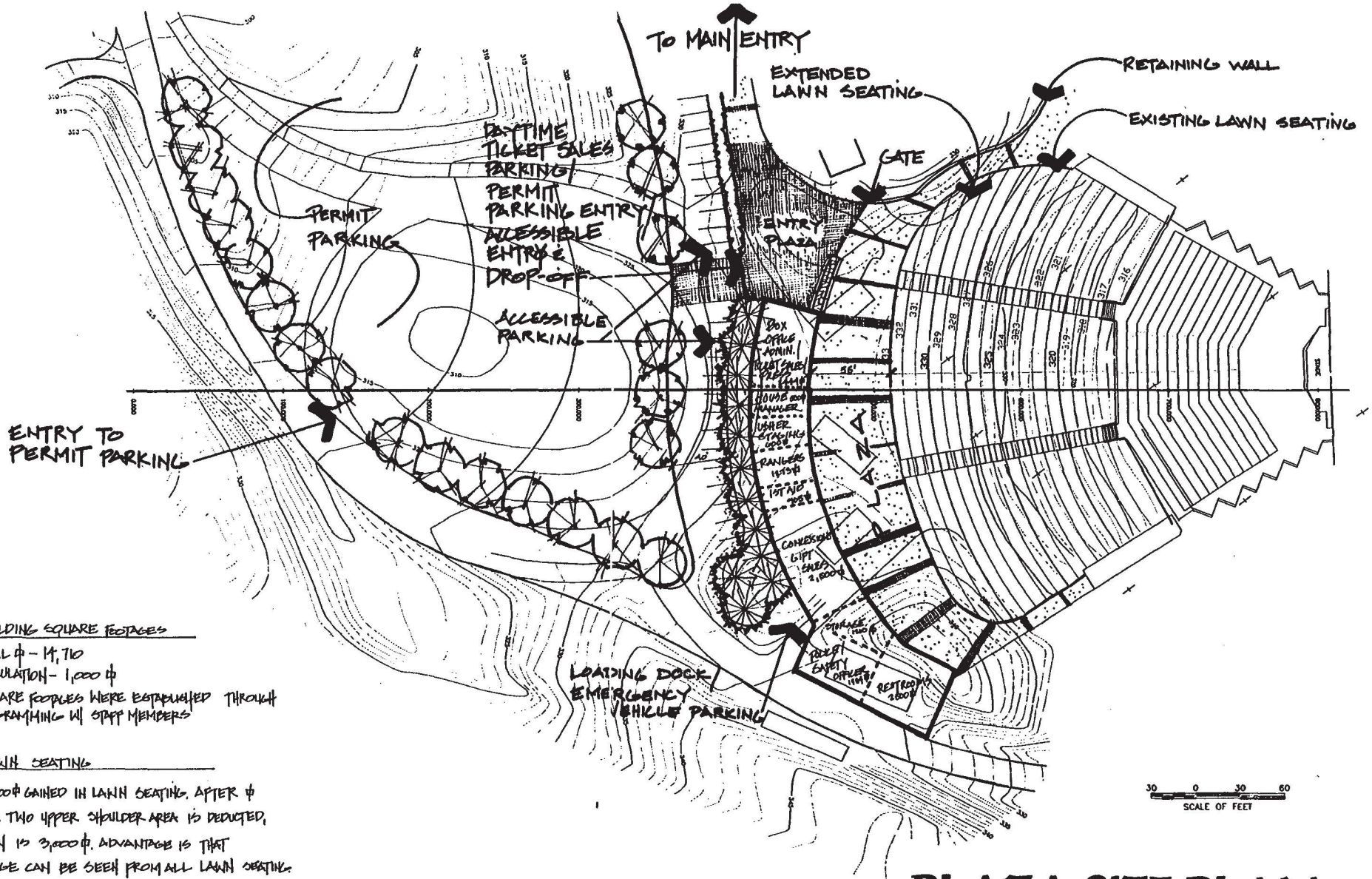
As in alternatives 2 and 3, provision for adequate parking and improved park infrastructure would be in place to completely accommodate sold-out performances. Increasing the frequency of performances or the duration of the season would not conflict with the purpose or objectives of the park, and therefore would not be precluded by this plan. However, the total number of performances and extension of the season would have impacts associated with staffing and operations costs. Either action would require decisions by park management based on these considerations.

Education and Interpretation

Recommendations in the 1993 *Interpretive Management Plan* described in alternative 1 would be implemented to the extent available funds and staff allowed. Park staff would work with the Wolf Trap Foundation and other potential partners to find additional sources of ideas and funds to complete the *Interpretive Management Plan* program and media recommendations, and to develop additional activities to educate the public about the performing arts. Significant programs, such as Masters Classes and Affiliate Artists Program, which were discontinued due to lack of funds would be revived. Furthermore, Backstage at Wolf Trap, a new program encouraged in the interpretive plan would be implemented.

This program could also be enhanced by an audiovisual production that documents backstage activities. A backstage exhibit would display objects donated by performers who have appeared at Wolf Trap.

An implementation plan would describe how the National Park Service and the Wolf Trap Foundation can share talents to improve Wolf Trap educational and interpretive programs. The Park Service could contribute expertise such as visitor management and interpretation/education methods, and the foundation could contribute theatrical and performing arts



BUILDING SQUARE FOOTAGES

TOTAL ϕ - 14,710
CIRCULATION - 1,000 ϕ
SQUARE FOOTAGES WERE ESTABLISHED THROUGH PROGRAMMING W/ STAFF MEMBERS

LAWN SEATING

14,500 ϕ GAINED IN LAWN SEATING. AFTER ϕ FOR TWO UPPER SHOULDER AREA IS DEDUCTED, GAIN IS 3,000 ϕ. ADVANTAGE IS THAT STAGE CAN BE SEEN FROM ALL LAWN SEATING.

PLAZA SITE PLAN

Wolf Trap Farm Park for the Performing Arts

DSC□OCT 96□627□20018

knowledge and talents. Both parties cooperating fully in all aspects of Wolf Trap operations authorized by legislation would be necessary to provide the desired level of visitor education and interpretive services in the anticipated future fiscal and personnel constraints. Consideration also would be given to using talents and resources of other groups and agencies as appropriate.

Administration, Operations, and Safety

As in alternative 3, administrative, operational, and safety functions with a direct link to visitor and patron services would be relocated to the new plaza building under alternative 4. This would include the box office, the press office, concessions, ranger services, and park police.

Other functions such as maintenance, the office of the director, and administrative staff would remain in existing locations.

ESTIMATED DEVELOPMENT COSTS

Estimated developments for alternative 4 are shown in appendix B.

MITIGATION MEASURES

Mitigation efforts for this alternative include the following:

- provision of safe pedestrian areas separate from vehicular traffic
- expanded parking areas to provide enough space to allow all parking within park boundaries, relieving overflow parking in nearby neighborhoods
- use of more traffic control staff and directional signage to direct patrons to the correct parking areas
- mimicking natural edges of the forest and retention of selected trees in designing tree removal in the new parking area to break the cleared area visually

These mitigation measures would keep all parking for performances within park boundaries, thus alleviating parking issues in neighborhood streets. Traffic congestion within the immediate area would continue to be an issue seasonally, especially at the end of each performance.

Additional mitigation measures relating to resource protection would be developed through the careful design of new parking areas and buildings. Onsite monitoring of the soil conditions would continue in areas where vehicles are parked in grass areas during events. These efforts would ensure that proper vegetative cover was present to reduce the potential of soil erosion during hot, dry periods and stormy weather. Vehicles would be restricted from these areas when problems were detected.

Water resource values would be protected through design of gradients for surface water flow. Point discharges through culverts would not be used, but rather slopes would be designed to accommodate sheet flow from these areas. Retention basins would be constructed, if needed, to retain excessive surface water runoff during major storm events. This includes the design of concrete catch basins with absorbable gas traps to filter petrochemicals contained in runoff. These actions would lessen the intense surface inputs directly into the stream channel reducing the potential of

stormwater surges and increase erosion in the floodplain. The potential for flood periodicity and magnitude would therefore be reduced. These drainage facilities would be located as part of the final design and construction process.

The designs for the pedestrian circulation and its related construction, as well as for the new box office plaza building, would be compatible with the Filene Center without introducing a visual or design impact into the country character of the site. Design for these areas would use materials and plantings that would blend into the site rather than dominate it visually.

ACTIONS AND ALTERNATIVES CONSIDERED BUT REJECTED

The following actions and alternatives were considered but rejected from further consideration for the reasons stated.

INCREASE TICKET SALES TO EXPAND CAPACITY AND REVENUES

Various approaches to increase ticket sales and thereby increase revenues were studied. One idea proposed by the members of the Wolf Trap Foundation was to project performances to the meadow on a large video screen. This action was rejected due to the increase in traffic and parking that would be required with increased capacity. Additional infrastructure required and increased crowding would significantly impact the country atmosphere valued by patrons, the protection of which is an important objective of the park.

DECREASE TICKET SALES TO DIMINISH CAPACITY TO REDUCE TRAFFIC AND PARKING IMPACTS

Reducing the number of tickets sold to reduce the number of cars drawn to the site was studied. Because authorization to build the Filene Center was based on the capacity of 7,000, and because the fiscal integrity of the operation of the facility is dependent on ticket sales at that level, this alternative was eliminated.

LOCATE THE PARKING STRUCTURE AT OTHER LOCATIONS WITHIN THE PARK

Two other locations for parking structures were considered in the transportation study. A location at Gil's hill was rejected due to unacceptable visual impacts and access constraints. A location west of the Dulles Toll Road on foundation-owned property was rejected because the foundation has other uses planned for that site. Access to this location was also an issue. Construction of a structure spanning the toll road was also considered but rejected due to costs and dimensions required to achieve the needed parking. It would have required a platform 1/2 mile long over the toll road.

CONSTRUCT A PARKING STRUCTURE OF TWO STORIES WITH A LARGER FOOTPRINT

An earlier study of the Wolf Trap parking dilemma suggested a smaller two-story structure that could contain 2,000 automobiles. That design used a larger footprint that would require removal of a large portion of the hill south of the west parking lot, adjacent to the toll road. This design was rejected because it was determined that the hill provides a barrier to road noise, and because the costs of excavation and construction of a larger footprint two-story parking would exceed that of a four-story structure confined to the footprint of the existing west parking lot. The number of spaces in that design would not meet the requirements of today's sold-out performances.

DEPEND ON PATRON USE OF A NEW METRO RAIL STOP THAT MAY BE CONSTRUCTED AT THE TRAP ROAD INTERSECTION WITH THE TOLL ROAD

Locating a new Metro rail stop at Wolf Trap would help ease the parking and traffic pressures on the park. However, it would not substantially alleviate the problem; if parking were still available in the park, even if spaces were known to be inadequate, it is estimated that only about 10% or 700 patrons would use it. This estimate is based on industry estimates of public transportation use. Preliminary cost estimates of a rail stop approach $15 million. The benefits described would not justify such costs.

ASSEMBLE AN ALTERNATIVE THAT INCORPORATES REMOTE PARKING AND SHUTTLE, A NEW METRO RAIL STOP AT WOLF TRAP, AND PARKING ON EXISTING PARKING SURFACES WITHIN THE PARK

Remote parking could remove up to 350 cars from the equation. Use of Metro rail by 700 patrons would remove another 340 cars, totaling 940 fewer cars to be parked within the park. However, current paved parking areas can accommodate only 1,520 cars. Under optimum conditions, this scenario would handle 2,460 cars. This is still approximately 940 spaces short of handling all of the 3,400 cars at a sold-out performance.

CONSTRUCT A NEW ADMINISTRATION BUILDING AND CONSOLIDATE ADMINISTRATIVE FUNCTIONS OF BOTH THE NATIONAL PARK SERVICE AND THE WOLF TRAP FOUNDATION IN ONE LOCATION

Consensus between the foundation and NPS staff was that maintaining separate administrative functions had merit because existing office spaces in proximity to the Filene Center and The Barns at Wolf Trap, respectively, was working well for both groups. Functions of the foundation directly related to Filene Center activities, e.g., ticket sales, would remain in the park, albeit relocated under alternatives 3 and 4.

CONVERT THE FARMHOUSE TO A VISITOR USE FACILITY FOR INTERPRETATION OR DONOR FUNCTIONS

The farmhouse, now NPS administrative offices, was studied for potential conversion to public use. It was determined that the house, because of its size, layout, and accessibility, had too many limitations to merit conversion for public use. Conversion would also necessitate relocating the administrative operations. Those functions are best performed in the core area where they are currently located.

CONSTRUCT A VISITOR CENTER

There are visitor contact functions now lacking or perceived to be lacking at Wolf Trap. The construction of a visitor center to provide these services was studied at the request of members of the foundation board. The visitor functions include interpretation

of performing arts and artists, both contemporary and historical; visitor contact for better information regarding Wolf Trap's programs and physical attributes, especially the Filene Center; and visitor safety and services. Provision of these services would also enhance off-season visitation by providing a better defined destination attraction.

In considering these needs, the team revisited the management objectives and the vision statements for the park that were developed by the Wolf Trap Foundation and the National Park Service. Central to the objectives and vision is the concept of country atmosphere. The foundation's patron survey and the NPS visitor survey demonstrate that the attribute that most defines this performing arts venue is the out-of-doors, the natural setting.

Based on these findings and the management objectives for the park, it is recommended that visitor functions listed would meet the spirit of Wolf Trap best if they too are offered out-of-doors. The approved *Interpretive Management Plan* goals include interpreting the performing arts, enriching enjoyment of performances, drawing people into the park during nonperformance times, and giving patrons something to do while they wait in ticket lines. All of these functions would be executed better onsite than at a visitor center at the park's entrance.

Interpretive displays around the plaza area would serve patrons as they wait. Technical aspects of the performances come to life backstage at the Filene Center. Understanding the evening's performance by listening to an artist while enjoying a picnic on the lawn segues perfectly to the performance itself. Patron comfort and services are offered best in the locations inside the park. All of these media and services should be offered open air to be in concert with the primary Wolf Trap experience, the performance.

Another issue related to construction of a visitor center would be cost. Whatever solutions are chosen to other management issues (e.g., parking) cost and competing priorities would be a concern.

TABLE 1: SUMMARY OF ALTERNATIVES

TOPIC	ALTERNATIVE 1 (CONTINUATION OF CURRENT MANAGEMENT PRACTICES)	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4 (PROPOSED ACTION)
Elements Common to All Alternatives	**Circulation** Existing roadway network would continue to provide the major access to the park via the Dulles Toll Road from the south to Trap Road and via Leesburg Pike (Virginia 7) from the north to Towlston and Trap Roads.			
	Parking and Pedestrian Corridors The costs of construction of a potential Metro rail stop at Wolf Trap Farm Park would be prohibitive; thus, the National Park Service would not rely on such service to alleviate parking pressures in the park. However, the Park Service would actively promote ridership to or parking of private vehicles at the stops at Tyson's Corner and Reston. From those locations, patrons would board Metro buses to the park. Existing pedestrian walkways would be replaced with wider walkways to improve pedestrian safety.			
	Visitor and Patron Facilities The maximum ticket sales capacity would be fixed at 7,000 (the current capacity), although up to 500 additional people from park or foundation staff, and those associated with performances, are routinely present. An additional comfort station would be constructed adjacent to the concession stand on house right to increase capacity and serve disabled patrons who are seated at the back of new accessible covered house seating. The meadow would not be used to increase capacity of Filene Center performances. Improvements made at Encore Circle at the log shelter and large deck at Wolf Trap Associates building for those who have made donations to benefit the park would remain.			
	Lighting Improvements An overhead pedestrian lighting system would be installed along all major pedestrian corridors. The lighting system would be designed to illuminate the sidewalks, but not the internal roads.			
	Noise The park and the foundation would strive to meet applicable noise regulations. Contracts with performers now include and would continue to include agreements to adhere to maximum allowed decibel levels and penalties for violating them.			
	Administration The farmhouse would continue to be used for NPS administration of the park. No modifications would be undertaken.			
	Cultural Resource Management The National Park Service would continue to manage the buildings and structures in the farm area according to NPS policies and guidelines. Future construction involving any ground disturbance would be monitored and if any archeological resources were discovered, construction activities would be ceased until a survey could be conducted. The Virginia state historic preservation officer has requested that additional research be conducted on the farmhouse and other components of the site to define the significance of these resources.			
	Boundary Adjustments The boundaries and size of the park are appropriate. No changes are proposed under any of the alternatives.			
	Telecommunications Bell Atlantic Mobile currently has a five-year lease for the placement of antennas on the roof of the Filene Center. Renewal of this use and decisions on future similar requests should be based on findings of no detrimental impacts, visual or operational, to Wolf Trap's character and performances.			

TOPIC	ALTERNATIVE 1 (CONTINUATION OF CURRENT MANAGEMENT PRACTICES)	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4 (PROPOSED ACTION)
Concept	Continue to provide the best possible performance experience within the existing infra-structure. Make no major modifications to structures or parking and circulation facilities. Improvements in safety, security, and routine maintenance would be undertaken as funding became available.	Absorb all parking impacts on paved lots within the park boundaries and provide an offsite parking area served by a shuttle system. Pave and stripe all level areas with good access to existing roads within the park for parking. Pave and stripe grass areas for safe and orderly parking.	Accommodate vehicles and pedestrians in safe, separate areas, and upgrade support facilities. Separate vehicular traffic from pedestrians to capitalize on the country setting and ambience that make Wolf Trap different from other venues in the area, and to reduce the visual interference of support facilities.	Provide sufficient parking for all visitors within the park boundaries without substantial additional paving or structures. Clear approximately 3 acres of forested area and regrade portion of adjacent grass parking areas. Repave and stripe existing parking areas to allow for maximum capacity.
Circulation	Continue to use existing road network for access to the park.	Continue to use existing roadway network to serve the park. Add directional sign age to reduce patron confusion of parking locations. Establish a remote parking area outside the park, possibly at the National Wildlife Federation building under a cooperative agreement. Provide overflow parking area shuttle service during concerts to serve remote parking area.	Continue to use existing road network for access to the park. At performance time, direct vehicles to either the new parking structure located at the west lot or to the existing east parking lot.	Continue to use existing main entrance road as access into park, but not as a through-way access. Remove spur that accesses Gil's hill and reconfigure Barn Road into main pedestrian walkway to theater area. Construct new vehicular paved access road along forested area on east edge of Gil's hill to facilitate traffic after performances, Theatre-in-the-Woods performances, and daytime service deliveries.
Parking and Pedestrian Corridors	Resurface and restripe west parking lot. Widen sidewalk along main road and illuminate to increase pedestrian safety. Install pedestrian barricade or split rail fence from east end of pedestrian tunnel extending up the path to main road, and extend south along main road to crossing on south side of intersection at Barn Road. Delineate pedestrian crossings with pavement markings and illuminate.	Regrade, pave, and stripe grass areas (Gil's hill, dust bowl, and dimple) currently used for parking. Slightly expand, repave, and restripe east and west parking lots. Add new parking areas (e.g., bottom of Gil's hill, crest of Gil's hill). Make improvements in pedestrian walkways as alternative 1, plus make improvements in the plaza area and the shuttle bus loading/ unloading area on east side of Trap Road.	Remove all parking, except for the disabled and an area for passenger disembarkation, from the area of the box office plaza area during performance time. Accommodate spaces required for peak concert use in the new parking structure, east lot, accessible lots, and stage lot. Construct additional pedestrian tunnel from the parking structure under Trap Road to supplement existing pedestrian tunnel under Trap Road. Install new pedestrian lighting throughout park.	Expand and reconfigure Gil's hill, the dust bowl, and the dimple to accommodate more cars. Fill in dimple and remove 3 acres of forest to the east of Gil's hill. Cut, regrade, and stabilize Gil's hill, the dust bowl, and the dimple to reduce grade of the hill to accommodate more cars and reduce slippage of cars during inclement weather. Repave and restripe east and west lots to provide easier and more unified parking. Use directional signage

TOPIC	ALTERNATIVE 1 (CONTINUATION OF CURRENT MANAGEMENT PRACTICES)	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4 (PROPOSED ACTION)
Parking and Pedestrian Corridors (cont.)				to separate the parking areas into general, permit, accessible, employee, and bus areas. Locate emergency vehicle parking at the entrance of the accessible parking at the dimple lot. Use lighted concrete and flagstone walkways to guide patrons from parking areas to theater areas. Provide cart service to the theater area from west lot, the farthest parking area from Filene Center. Widen walkway from east lot to Barn Road.
Visitor and Patron Facilities	Make minor upgrades in existing comfort stations and concession facilities for capacity and accessibility.	Upgrade box office plaza area to improve services, aesthetics, safety, and efficiency. Add comfort stations and concession capacity as needed.	Construct space inside wings of new beamed area on either side of the pass through walkway for concessions, comfort stations, ticket sales, ranger activities, and park police. Expand plaza and extend lawn seating to achieve a more gentle angle and increase comfort level of lawn patrons.	Redesign approach to the Filene Center and associated areas to allow for better function and appearance. Remove box office building and ancillary buildings and replace with a single-story structure to consolidate all patron and visitor functions. Expand plaza and extend lawn seating to achieve more gentle angle.
Frequency of Performances and Duration of Season	Keep the number of performances and length of the season at current levels.	Expanded parking and improved infrastructure would not prohibit an increase in the frequency of performances or duration of season	Same as alternative 2.	Same as alternative 2.

TOPIC	ALTERNATIVE 1 (CONTINUATION OF CURRENT MANAGEMENT PRACTICES)	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4 (PROPOSED ACTION)
Education and Interpretation	Continue existing programs with minor expansion and improvements as funding and staffing become available. Work toward implementation of 1993 *Interpretive Management Plan* recommendations. Continue to use interpretive staff during performance season for traffic and parking duties.	Work with Wolf Trap Foundation and other potential partners to find additional sources of talent, ideas, and money to complete the *Interpretive Management Plan* program and media recommendations and to develop additional activities to educate the public about the performing arts.	Implement and expand all concepts described in the *Interpretive Management Plan*, including live performances, audience participation, and related educational activities. Enhance patron experience through box office plaza improvements for additional education and interpretive services. Use subsequent implementation plan to describe how the Park Service and the foundation can share talents to improve Wolf Trap educational and interpretive programs.	Implement recommendations described in the *Interpretive Management Plan* to extent funds and staff allow. Work with foundation and other potential partners to find additional sources of ideas and funds to complete plan program and media recommendations, and to develop additional activities to educate public about the performing arts. Share talents with foundation to improve Wolf Trap educational and interpretive program.
Administration, Operations, and Safety	Upgrade safety and operation facilities as needed to meet minimum standards for space, efficiency, and safety requirements in existing locations. Retain administration functions in the existing farmhouse.	Same as alternative 1.	Relocate to the new plaza building administrative, operational, and safety functions with a direct link to visitor and patron services (e.g., box office, press office, concessions, first aid). Retain other functions (e.g., maintenance, administrative staff) in existing locations.	Same as alternative 3.
Estimated Total Development Costs	$935,100	$15,094,300	$44,745,600	$13,406,300

TABLE 2: PARKING INVENTORY BY ALTERNATIVE

PARKING AREA	ALTERNATIVE 1 (CONTINUATION OF CURRENT MANAGEMENT PRACTICES)	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4 (PROPOSED ACTION)
West parking lot	900	900	0	900
East parking lot	450	658 (also used for bus parking)	350 (also used for bus parking)	400 (also used for bus parking)
East lot (grass)				
Gil's hill	650	500	0	
Gil's hill mass parking	60	0	0	1,100
Gil's hill forest	0	290	0	
Permit/accessible parking				
Dust bowl	210	250	0	400
Dimple (circle)	126	80	0	
Accessible parking lot #1	50	50	50	50
Accessible parking lot #2	0	0	0	50
(adjacent to Filene Plaza				138
Loading dock	138	138	138	6
Filene Center drive-thru	6	6	6	0
Stage Road	6	6	0	0
Associates lawn	45	0	0	0
Parking area #3 (along stage road)	30	30	0	60
Tunnel mass parking	38	0	0	0
Marque mass parking	23	0	0	0
Parking structure	0	0	2,838	0
TOTALS	2, 732	2,908	3,382	3,104

NOTE: Alternative 2 increases 176 spaces from existing conditions, and alternative 3 increases 650 spaces from existing conditions. Alternative 2 remote parking would accommodate up to 350 vehicles. Alternative 4 increases 624 spaces from existing conditions.

* Areas to be used for bus parking.

TABLE 3: SUMMARY OF ENVIRONMENTAL IMPACTS

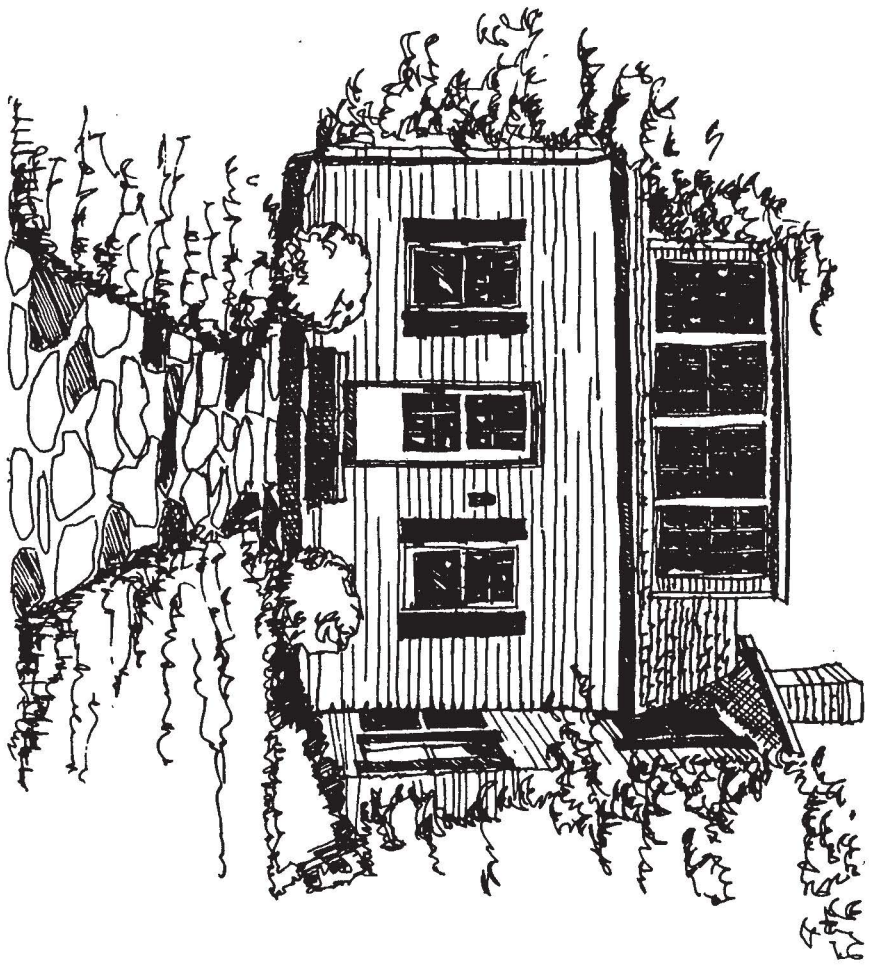
TOPIC	ALTERNATIVE 1 (CONTINUATION OF CURRENT MANAGEMENT PRACTICES)	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4 (PROPOSED ACTION)
Impacts on Natural Resources	During performance events, high amounts of mobile sources of pollutants (e.g., carbon monoxide, nitrogen oxides, fine particulates) would probably continue to be concentrated in the vicinity of traffic congestion as a result of patron arrivals and departures. Short-term air quality impacts would result from fugitive dust/fine particulate matter during grading and construction activities.	Same as alternative 1. In addition, the proposed increase in the number of parking spaces available to concert patrons within the boundary of the park would not expect to contribute to incremental degradation of the air quality or the air quality related values for the park or the surrounding vicinity.	Same as alternative 1. In addition, through the employment of a centralized parking facility, onsite air quality during performances could be slightly improved above ambient conditions because traffic circulation would be improved. An onsite facility would provide for enhanced traffic flow into the park, result in less congestion, shorter idling times, and less pollution.	Same as alternative 1 for short-term air quality impacts from construction activities. In addition, the increase in the number of parking spaces available to concert patrons within the boundary of the park would not expect to contribute to incremental degradation of the air quality or the air quality related values for the park or the surrounding vicinity.
	Grading and filling activities associated with establishing pathway grades would directly impact those soil types within the footprint and work area of the proposed development. Compaction of the soils would continue in those areas of the park where patron parking was permitted on the grass areas (approximately 15.56 acres). There would be a long-term potential for soil contamination from automobile oil leaks and other discharges with the continuation of parking in these areas.	Grading and filling activities for establishing trail grades and trail alignment improvements would directly impact those soil types within the work area of the proposed development. Proposed trail alignments and improvements would impact 1.41 acres of soils in addition to improvements in alternative 1. Paving parking in areas where grasses and forest communities currently exist would directly impact 18.25 acres and permanently remove the soils in the developed area from productivity.	Grading and filling activities for the accessible lot and trail modifications would directly impact those soil types within the work area of the proposed development. Approximately 10.06 acres of impacted soils would be returned to a more natural condition with the elimination of 1,249 parking spaces on the grass community and in some of the existing paved parking sites. Soil impacts from compaction by vehicles traveling and parking on soils with a grass cover would be eliminated.	Grading and filling activities for the accessible lot and trail modifications would directly impact those soil types within the work area of the proposed development. Approximately 14 acres of soils onsite would be disturbed by grading and filling activities for other parking developments. Removal of existing paved surfaces would return approximately 0.48 acre to more natural soil conditions. Soils would continue to be impacted by vehicles from off-road travel and parking in the grassy areas.
	The most significant impact on the water resources within the park would be to the intermittent stream flowing from the southern boundary toward the Filene Center and confluences with Wolf Trap Run. External development actions have changed the water quantity and quality and of the creek's surface water regime. Widening the park's	Same as alternative 1. In addition, more acreage would be affected due top proposed developments (parking facilities and trail improvements). Park flood levels and their associated discharge rates could increase from proposed developments near the Wolf Trap Run stream course (parking facility for east lot - forest), which could have downstream implications	Same as alternative 1. In addition, other development actions would provide for better water management practices onsite with little or no additional impacts on water resources. Areas closed to parking (e.g., Gil's hill area, dust bowl) would return these areas to natural condition and allow stormwaters to percolate into the ground rather than	Same as alternative 1. In addition, none of the expanded or existing parking lots would be paved, providing for a slightly permeable soil condition, which would allow for infiltration of surface waters, especially during low magnitude storm events. Low-lying areas west of Trap Road within the park would continue to be flooded during peak

TOPIC	ALTERNATIVE 1 (CONTINUATION OF CURRENT MANAGEMENT PRACTICES)	ALTERNATIVE 2	ALTERNATIVE 3	ALTERNATIVE 4 (PROPOSED ACTION)
Impacts on Natural Resources (cont.)	pedestrian routes would not have an adverse impact on water resources or water resource values of the park.	for the predicted flood periodicity and extent.	discharge as a sheet flow directly into Wolf Trap Run.	storm events as a result of impacts associated with proposed actions.
	There would be no impacts on floodplain values in the park through proposed development actions.	Actions associated with the development of the east lot and its adjacent trail would directly impact the 1.2 acres of the floodplain of the Wolf Trap Run drainage. Proper floodplain protection would be provided through the design of the parking area and pedestrian trail. All other actions are outside the 100-year floodplain.	Same as alternative 1.	Same as alternative 1.
	There would not be any direct or indirect impact on wetlands or their associated communities as proposed developments would occur outside existing wetland areas.	Same as alternative 1.	Same as alternative 1.	Same as alternative 1.
	Improvements to the trails and pedestrian network within the park would directly impact approximately 0.03 acre of the parkland–with trees community. Other trail and pedestrian improvements would impact approximately 0.53 acre of the parkland–open vegetation community. Use of grass parking areas by event patrons would continue to commit 15.56 acres of the parkland–open vegetation community for parking and continue to require the planting of nonnative grass species.	Impacts from like improvements to the trails and pedestrian network would be the same as alternative 1. However, impacts associated with parking on the grass would be diminished by development of paved parking areas. Actions proposed for development for the east and west lots and trail improvements would convert 7.49 acres from uplands hardwood community to a developed site. Approximately 11.23 acres of the parkland–open vegetation community would be lost within the park's boundary.	Impacts on vegetative communities from development of the accessible lot and some of the trail modifications would be the same as alternative 1. In addition, the elimination of parking in areas of the parkland–open vegetation community would allow the reestablishment of a grass landscape and return 10.06 acres to a more natural condition.	Approximately 3 acres of disturbance would occur within the forest community as a result of proposed actions. This would reduce the upland hardwood forest community by approximately 2% from its current condition, and could reduce species abundance. Vegetation composition would also change. Areas proposed for parking where grading would occur would be planted with grass capable of withstanding vehicular traffic/parking.

Topic	Alternative 1 (Continuation of Current Management Practices)	Alternative 2	Alternative 3	Alternative 4 (Proposed Action)
Impacts on Natural Resources (cont.)	There would be a short-term disruption and/or displacement of wildlife species during construction activities. The core habitat along the riparian areas and in the upland and bottomland hardwood community types would remain unchanged.	Same as alternative 1 for like actions proposed. In addition, long-term impacts for construction of the accessible lot and trail alignments are also applicable. Impacts on wildlife resources would result from development of the parking areas and trail improvements at the east lot and Gil's hill. Development of the east lot could impact the most sensitive habitat values because of its proximity to riparian habitat onsite.	Same as alternative 1 for like actions proposed. In addition, with the removal of parking from the parkland–open vegetation class and restoration of 10.06 acres, there would be greater habitat for some wildlife species. Species abundance could increase due to the increase in open area and net decrease in developed areas within the park.	Same as alternative 1 for like actions. In addition, the most critical impact on wildlife resources would be associated with proposed developments in the upland hardwood forest habitat type. The impacts could affect a greater number of species due to the type conversion of the forest community to an open parkland condition. The resident population of pileated woodpeckers could be reduced by actions proposed.
	There would be no effect on either endangered or threatened species because none inhabit or use the area, except for occasional transients.	Same as alternative 1.	Same as alternative 1.	Same as alternative 1.
Impacts on Cultural Resources	The use of the structures would remain as it currently exists. The visual impact created by the parked cars on the grass areas would continue to have a negative impact on the setting of the site.	The immediate setting of the plaza area would be slightly altered. The expansion of parking into other areas of the park and the visual impact created by the parked cars would have a greater negative long-term impact on the country setting of the park than alternative 1.	The appearance of the structures as they currently exist would not be affected by the construction of a parking structure. The parking facility would create more of a visual impact than the existing west parking lot; however, it would help consolidate parking away from the farm and performance area.	The appearance of the structures as they currently exist would not be affected by the proposed parking practices. The improvements and redesign of the plaza/theater area would not affect the use or appearance of the farm structures, except for the ranger station (guest cabin), which might be affected depending on the final design of the plaza area. The visual impact created by a larger expanse of parked cars would have a greater negative impact on the country setting of the park than what currently exists. Grading some of the areas could negatively affect the rolling-hill atmosphere of the site.

Topic	Alternative 1 (Continuation of Current Management Practices)	Alternative 2	Alternative 3	Alternative 4 (Proposed Action)
Impacts on Cultural Resources (cont.)	Archeological surveys would be performed to determine if any archeological resources exist. If construction activities yield any archeological resources or potential sites, these sites would be recorded, and mitigation measures would be developed in consultation with the Virginia state historic preservation officer and the Advisory Council on Historic Preservation, in accordance with 36 CFR 800.11.	Same as alternative 1.	Same as alternative 1.	Same as alternative 1.
Impacts on Transportation	Long-term seasonal negative impacts would result from traffic circulation in the area before and after most performances. Some pedestrian/vehicular conflicts would continue as patrons walk to their vehicles parked south of the overpass over the toll road, and along Trap and Towlston Roads north of the park to get to their vehicles in adjacent neighborhoods. Pedestrian/vehicular conflicts would be reduced due to improvements to separate pedestrian and vehicular movements onsite and the provision of an overhead lighting system on main pedestrian corridors.	Long-term positive impacts can be expected on traffic circulation in the immediate area of the park before and after performances, as most vehicles would be accommodated within the boundaries of the park. Pedestrian/vehicular conflicts would be greatly reduced because patrons would not be walking on Trap or Towlston Roads before and after sold-out performances. The operation of the shuttle system would require funding to operate the system as well as additional staff time to manage traffic and parking operations.	Long-term positive impacts can be expected on traffic circulation in the immediate area of the park before and after the performances, as most vehicles would be accommodated within the boundaries of the park. Pedestrian/vehicular conflicts would be greatly reduced because of the elimination of dispersed parking on grass areas and along Trap and Towlston Roads. Staff time would be reduced to manage parking because over 80% of the patrons would use the parking structure during sold-out performances.	Long-term positive impacts can be expected on traffic circulation in the immediate area of the park before and after the performances, as most vehicles would be accommodated within the boundaries of the park. Patron parking in the neighborhoods would be eliminated, thereby greatly reducing traffic noise and congestion. Pedestrian safety would be enhanced because patrons would not have to walk on the shoulders of Trap and Towlston Roads before and after sold-out performances. The vehicular exit process at the end of performances would result in a longer time period to empty the parking lots east of Trap Road.

Topic	Alternative 1 (Continuation of Current Management Practices)	Alternative 2	Alternative 3	Alternative 4 (Proposed Action)
Impacts on Patron Experience	On nights when performances are sold out, approximately 500 cars carrying over 1,000 patrons would be turned away from the park entrance. These patrons would have to find alternative parking, usually in the neighborhoods to the north or south of the park, which can take up to 30 minutes. These patrons would arrive late, frustrated, and often upset. These patrons usually are reserved seat ticket holders who must then wait until a break in the program to be seated by house ushers. After the performance these patrons must hike back to their cars amidst the 3,000 cars competing to exit the park simultaneously.	Fewer patrons would be turned away from full parking lots onsite, and an alternative remote parking lot and shuttle service would be available. Thereofre, patron frustration would be alleviated. However, the additional pavement in the park and the density of cars onsite would have a moderate impact on the country character of the park experience. This would be a pronounced long-term negative impact when the park is not hosting a performance and the parking lots are empty.	The quality and safety of the patron experience would be greatly enhanced by separating the vehicles from the pedestrians and creating more picnic areas. Parking frustrations would be eliminated and the country character of the park east of Trap Road would be maintained. Upgrades to the box office plaza area would enhance the experience aesthetically and functionally.	Patron frustrations in finding convenient, safe parking would be alleviated, resulting in long-term positive benefits to patrons who are currently turned away during sold-out performances. The box office plaza design would improve the aesthetic and functional quality of the support facilities. The removal of 3 acres of forested area and the increase in the density of cars dispersed up to the plaza and into the wooded area at Gil's hill would moderately diminish the quality of the country character.
Impacts on Socioeconomic Environment	The neighborhoods immediately surrounding the park should expect long-term negative impacts from traffic congestion and parking on neighborhood streets whenever capacity or near capacity performances are scheduled.	The neighborhoods immediately surrounding the park should expect long-term positive benefits as most vehicles would be accommodated within the park. However, regular periods of traffic congestion associated with performances would continue seasonally over the long term.	The neighborhoods immediately surrounding the park should expect long-term positive benefits as most vehicles would be accommodated within the boundaries of the park. The quality and safety of the patrons' experiences would be greatly enhanced by separating the vehicles from the pedestrians and creating more picnic areas.	Same as alternative 2.



AFFECTED ENVIRONMENT

THE PARK SETTING

Wolf Trap Farm Park is comprised of approximately 130 acres. It is surrounded by residential neighborhoods on the east, west, and north, and bordered on the south by the Dulles Toll Road. Located in long-established Fairfax County and only 30 minutes from the nation's capital, the park provides a physical and visual relief from the urban and suburban development of the Washington metropolitan area. Trap Road, by which the majority of park patrons arrive, bisects the park.

Approximately 24 acres of the park have been developed in paved roads, trails, and structures, representing approximately 19% of total park acreage. Within the park are three distinctive areas — one conveys the pastoral quality of the past farm use; another the drama of the theater complex; and the remainder, relatively undisturbed woodlands. These areas merge depending on the scheduled activities and time of day.

THE FARM AREA

The farm area contains the farmhouse, used for administrative headquarters, and several outbuildings. The grounds in the farm area are lined by lilac and forsythia hedges, with meandering paved paths throughout. Planted hedges of juniper and holly divide the area from the theater complex and frame beds of flowers. The farm area is small, and the topography and vegetation afford a sense of privacy. The tree-lined farm drive is flanked by approximately 7 acres of hilly fields (which double as parking lots during performances) bordered in split rail fence. From these fields are views west (which mostly encompass the Dulles access road and the west parking lot).

The lot shelter building within the farm area has recently been upgraded by the addition of a large slate patio. The shelter and patio have been landscaped and furnished to serve as a lounge and refreshment area for the exclusive use of donors to the Wolf Trap Foundation.

The setting and its structural, natural, and landscape qualities are inherent to the history of Wolf Trap Farm. A description of the structures is contained in the "Cultural Resources" section.

Adjacent to the farm area is an open field known as "the meadow," a sloped grassy area where informal entertainment and festivals take place. At the north end of the meadow is an 8,500-square-foot deck attached to a small ranch house used by the Wolf Trap Associates, the fund-raising arm of the foundation. The deck serves as an entertainment area for donors.

THE WOODLANDS

There are approximately 76 acres of dense woods with Wolf Trap Run and a 2-acre man-made pond on the northeast border of the park. These woods act as a sound and visual buffer, as well as habitat for numerous species of birds and mammals. The National Wildlife Federation has constructed an interpretive nature walk on the bluff above the natural area northeast of the Theatre-in-the-Woods, just outside the park boundary.

East of Wolf Trap Run is an area of pronounced hills. The pond lies in a wooded area northwest of the Theatre-in-the-Woods, and access to the pond is not encouraged for safety and liability reasons. Unmarked footpaths encircle the pond and continue along Wolf Trap Run.

THE THEATER AREA

The Filene Center, an open air amphitheater with a seating capacity of 7,000 (including lawn seating) is the focal point of Wolf Trap Farm Park. The theater area forms a bowl to the south of the farm area and drops in grade from the plaza, which contains the patron services, to the stage. The plaza contains several buildings, both permanent and temporary trailer-type structures. They house concessions, a box office, visitor services, restrooms, a press office, and park police and security, with parking below the Filene Center for those involved in the performances. From the box office plaza area are limited views to the west.

A large, festive dinner tent is erected on a platform during the summer season in the upland portion of the meadow. It has a seating capacity of 200 and is open to the public. A concrete path runs through the meadow, past a concert shell located in an alcove of trees in the lower portion of the meadow, and crosses Wolf Trap Run. Here the pathway enters the woods and changes to dirt. The pathway through the woods leads to the Theatre-in-the-Woods, a children's amphitheater. This informal wooden structure is located east of Wolf Trap Run, facing a natural slope where wooden benches can seat up to 800 children.

NATURAL ENVIRONMENT

CLIMATE

Fairfax County has a continental, humid, temperate climate. Average temperatures range from a low of 36°F in December to a high of 76°F in July. Most rain falls in the summer and spring. Annual precipitation for the area is 45 inches ranging from 2.3 inches in February to 5.4 inches in May. Winters are relatively mild, but there can be snow during the colder months. However, the accumulation is not significant, and the snow remains only a few days following the storm. This climatic regime limits outdoor programs at the site to a period from mid-May to October.

AIR QUALITY

Wolf Trap Farm Park is classified as a class II clean air area under the Clean Air Act (42 U.S.C. 7401). This classification is in accordance with the requirements for the prevention of significant deterioration requirements of the Clean Air Act. These requirements are the most important for NPS air quality management responsibilities. These rules established the classification system for clean air areas for two pollutants, sulfur dioxide and total suspended particulates. A class II area is allowed a moderate and incremental amount of additional air quality degradation but not to exceed the national ambient air quality standards (NAAQS) established by the Environmental Protection Agency for the two pollutants. Currently Fairfax County exceeds the NAAQS for carbon monoxide and ozone.

The air pollutants monitored by Fairfax County are ozone, carbon monoxide, sulfur oxides, oxides of nitrogen, hydrocarbons, and suspended particulates. The county also collects information on temperature, wind directions and velocity, and precipitation that may affect the concentration and distribution of the pollutants.

The only pollutant that exceeded air quality standards established by the county during the past several years was ozone. This source of pollution is not an emitted pollutant, but is formed by a complex series of reactions among nitrogen oxides and hydrocarbons in the presence of sunlight. Ozone causes eye and respiratory irritation and reduced lung function, is toxic to many plants, and weakens materials such as rubber and fabrics.

Carbon monoxide is produced by incomplete combustion of carbon compounds, principally in internal combustion engines. Carbon monoxide has little or no effect on plants or materials. However, it reacts in the bloodstream to deprive the heart and brain of oxygen.

Sulfur oxides cause chlorosis in plant leaves and in moist air, and form acids that damage structural materials.

Nitrogen oxides are formed by high temperature combustion in both stationary and mobile sources such as internal combustion engines. Nitrogen oxides form photochemical smog, damage vegetation, cause fabrics to deteriorate, and contribute to metal corrosion.

Hydrocarbons include a variety of compounds consisting of hydrogen and carbon in various combinations. Fossil fuels are included in this group. Many hydrocarbon compounds are major air pollutants, and some are photochemically reactive. Motor vehicles are a major source of anthropogenic hydrocarbons. Certain hydrocarbons can damage plants by inhibiting growth. However, levels of hydrocarbons measured in urban areas are not known to cause adverse effects in humans. They are, however, members of a contaminant group that form important components in the reactions that produce photochemical oxidants.

Suspended particulates include dust, smoke, and other solid and nonvolatile liquid particles small enough to suspend readily in the air. This type of pollution can cause respiratory and eye irritation and can be corrosive.

NOISE

Noise levels were measured in and around the park in July 1994 to identify traffic-related noise on concert and nonconcert nights and concert noise during performances. Noise measurements were taken at 23 sites in the park, the Filene Center, and surrounding areas.

The measurements were taken on the following days: July 5 and 6 (nonconcert nights); July 16 (symphony); July 17 and 18 (Four Tops and Temptations); July 19 (Santana); and July 20 (nonconcert night).

Two types of sound data were collected, including A-weighted sound levels recorded in decibels (dB) and octave band frequency sound pressure levels. The latter measured the average level in each octave band during the sample period. The "Wolf Trap Farm Park Traffic and Concert Noise Assessment" (Bowlby and Associates, Inc. 1994) provides a detailed analysis of the noise study.

There were four relevant noise standards and guidelines that were used to evaluate the noise environment. American National Standards Institute (ANSI S12 40-1990) suggested criteria; federal interagency guidelines for considering noise in land use planning and control; Fairfax County noise regulations; and Federal Highway Administration (FHWA) noise abatement criteria.

Data were analyzed to determine the difference in levels on performance and nonperformance nights. The measured levels were compared to the relevant standards and guidelines mentioned above to quantify the noise-related impacts caused by concerts and/or concert traffic. The comparison of the concert night data and the nonconcert night data at the community sites was used to address background noise problems.

Traffic Noise Levels

The concert-related average levels for traffic noise fell well below the FHWA noise abatement criteria for residential land use. The increase of concert night levels over nonconcert night levels is greatest along Towlston Road due to traffic departing from concerts over a short-term period. However, none of these increases are considered substantial according to FHWA noise abatement guidelines.

Concert Noise Levels

Sound levels from concerts were in the "compatible" category according to the federal interagency guidelines. It would take a significant increase in the number of concerts in a year to raise this into an "incompatible" zone based on those guidelines. The levels were in the marginally compatible zones in the ANSI suggested criteria ("moderate" exposure).

The Fairfax County noise standards (sound level and octave band frequency sound pressure level) were exceeded on two of the concert nights (July 18 and 19). The standard was exceeded at the recording sites within .7 mile of the Filene Center north of the Dulles Toll Road. The standards were not exceeded at sites farther than .7 mile north of the toll road and none of the sites south of the toll road.

TOPOGRAPHY, GEOLOGY, AND SOILS

Wolf Trap Farm Park consists of rolling hills, a stream valley, and flat to gently sloping developed areas.

The central area of the park is relatively flat, open land, which supports the roads, parking, and administrative buildings. This area slopes gently to the north and more abruptly to the east along the floodplain of Wolf Trap Run.

This flat floodplain area is bordered by steeply sloped hills that provide scenic vistas in the eastern part of the park. A small section of the valley edge, east of the parking areas, forms a rather steep embankment. This area includes slopes over 30% with a vertical difference of 50 feet. It is characterized by eroded, somewhat rocky soils.

East of Wolf Trap Run is an area of pronounced hills. A meadow is also located in these hills indicating previous agricultural activity.

Except for the developed areas and the meadow, the park is predominately wooded. The overall elevation range is about 100 feet with the highest hills to the southeastern portion of the park. Conversely, the lowest point is in the northwest corner of the park within the floodplain.

Wolf Trap Farm Park lies entirely within the Piedmont Province (plateau between the coastal plain and the Appalachian Mountains) and is underlain by crystalline and metamorphic rock. The strata in the vicinity of the park is within the Piedmont Upland that consists of mainly quartz sericite schist, granite gneiss, and greenstone. Chemical weathering of the strata is extensive and has resulted in the formation of a deep layer (may exceed 150 feet in thickness) of soft, clay-rich, decomposed rock (saprolite). Throughout the area, depth to bedrock is estimated to be at least 10 feet, becoming progressively shallower near stream valleys.

The soils of Wolf Trap Farm Park consist of nine soil series. Table 4 shows the nine series and the approximate acreage and percentage of the total site represented by each soil series.

TABLE 4: SOILS - WOLF TRAP FARM PARK

Soil Series	Acres	Percent of Total Site
Glenelg	32	25
Chewacla	26	20
Rocky Land	24	18
Mixed Alluvial	20	16
Manor	13	10
Glenville	7	5
Worsham	4	3
Meadowville	3	2
Raritan	1	1
Total	130	100

According to the soil classifications for the series mapped at Wolf Trap Farm Park, the characteristics for each series are as follows:

- Glenelg — Moderately deep, well-drained soils. Largest soil classification of the park; represents much of the upland surface area. Silty-loam in texture and associated with Manor, Meadowville, and Worsham soils. Well suited to most forms of development.

- Chewacla — Young, fertile, somewhat poorly drained to moderately drained soils; subject to flooding. Developed from fine material eroded from the Piedmont upland. Silty-loam to loam texture, medium acidity in most places, and moderate to high water holding capacity. Unsuitable for most permanent structures.

- Rocky Land — Mainly areas of manor soils with numerous outcrops of bedrock and some fragments of loose stones. Moderate to steep slopes where soils are quite shallow. Rapid runoff, medium to rapid internal drainage, and moderate to severe erosion hazard. Mostly forested steeper slopes, but areas of more gradual slope suitable for pasture and moderately suitable for structures.

- Mixed Alluvial — Soils eroded from the uplands and lodged on first bottoms along some of the smaller streams. Most soils somewhat poorly drained; some areas well to moderately well drained. Subject to flooding and to additional deposits of fresh sediment. Because of poor natural drainage, flooding, and poor workability, better suited to pasture or forest than to cultivated crops and most forms of development.

- Manor — Shallow, highly micaceous, somewhat excessively drained soils of the upland. Located on narrow, rolling ridgetops and the steeper ridge slopes. Yellowish brown surface layer; directly over micaceous residuum. Very thin, weakly developed subsoil in some areas similar to that of the Glenelg soils. Associated with the Glenelg, Elioak, Meadowville, Glenville, and Worsham soils. Well drained and well suited for most forms of development.

- Glenville — Light-colored, moderately well drained to somewhat poorly drained soils occupying depressions on slopes and at heads of drainageways. Silty-loam texture; situated near the central portion of the tract near Trap Road. Strongly acidic, moderately low in organic matter, and fairly low in natural fertility. Moderately permeable; erosion not a problem. Moderately suited to development and intensive visitor use.

- Worsham — Wet, poorly drained soils, commonly called gray crayfish land, occupying low, flat, depressed areas. Comprise about 6 acres of land in the drainage area northeast of the Filene Center. Because of slow runoff, a high water table, and poor internal drainage,

soils poorly suited to most forms of development and intensive visitor use.

- Meadowville — Deep, brown, well drained to moderately well drained alluvial soils. Associated with Glenelg, Elioak, and Manor soils. Occupy low depressions near the heads of drainage ways and at the bases of slopes. Silty-loam texture, strong to medium acidity, and moderately good water holding capacity. Medium to slow surface runoff and medium to rapid internal drainage. Well suited for agricultural uses and for structural development not requiring extensive subsurface excavation for support.

- Raritan —Deep to moderately deep, somewhat poorly drained soils occupying low terraces in the Piedmont Lowland (Triassic). Subject to flooding only when the water stage is extremely high. Developed from sand, silt, and clay that washed from soils that are underlain mainly from sandstone and shale. Silty-loam texture, strong acidity, and moderately high water table; medium to slow runoff and slow to very slow internal drainage. Poorly suited to most forms of development.

WATER RESOURCES

Wolf Trap Run is one of two perennial streams within the park boundary (a second perennial stream comes from the northeast corner of the park and flows into Wolf Trap Run). This stream, flowing in a northerly direction, originates at Spring Lake, approximately 2/3 mile south of the park. Moonac Creek, Old Courthouse Spring Branch, and other overland drainages also contribute to the creek's flow regime. About 1.5 miles downstream, the stream confluences with another creek, Difficult Run, which flows into the Potomac River at the south end of Great Falls Park. In addition to surface flows, there are many emergent springs near the bottomlands of the Chewacla-Wehadkee soil association where the adjacent uplands intersect these lower lying areas.

The bottomland along the stream valley is subject to flooding during major, sustained, rainfall events. West of Trap Road are broad expanses of low-lying land that are inundated during peak flow conditions. Discharge rates during major events lessen as the floodwaters encounter the temporary base level of the floodplain. However, east of Trap Road, the width of the stream valley narrows constricting flow, which increases both the depth of the stream and its discharge rates.

A manmade farm pond with approximately 2 acres of surface extent is situated in the northeast portion of the bottomland area. This shallow pond is undeveloped and is not fed by any intermittent or permanent source of flowing water.

The park has recently initiated a water quality monitoring program to determine the surface water quality conditions in Wolf Trap Run. Data collected by this effort will be compared with historic water quality parameters to evaluate the status of current conditions and trend analysis.

One issue of concern pertaining to the water quality/quantity conditions at Wolf Trap Farm Park is runoff associated with impermeable surfaces such as adjacent roadways. The Dulles Toll Road, which borders the park, has increased the localized stormwater flows and drainage

characteristics. The stormwater is delivered via culverts and armored stream channels to an intermittent stream within the park's boundaries. The additional stormwater has increased the erosion rate of the stream and deposited sediment onto the floodplain of Wolf Trap Run. It is suspected that these surface inputs are polluted and there is potential for water quality degradation following major storm events, especially after long periods with little or no rainfall.

Urban development within the vicinity of Wolf Trap Farm Park is another water quality/quantity issue of concern. Encroaching residential development adjacent to the park boundary has increased impermeable surface extent and altered the drainage network. These land use changes have created a serious runoff problem in Wolf Trap Run. Both water quantity and the associated discharge rates have increased during peak flows. This has caused severe erosion problems to develop, which are most pronounced along the streambank and sloping lands on park property. The erosive characteristics of these stormwaters has weakened the root systems of many trees and threatens park facilities at the performing arts sites. In addition, these turbid waters deposit sediments in the low-lying areas of the floodplain.

FLOODPLAINS

Floodplain delineations have been completed for the Difficult Run Basin, which includes Wolf Trap Run, Fairfax County, Virginia. The floodplain maps were prepared by the U.S. Geological Survey in cooperation with the county of Fairfax as a part of a study of urbanization effects on flood discharges. The map was compiled by photogrammetric methods and control/photogrammetric surveys were in accordance with the National Map Accuracy Standards. The floodplains delineated by this effort indicated the extent of inundation for the 25-, 50-, and 100-year recurrence interval floods. As applied to flood events, a recurrence interval is the average interval of time within which a given flood will be equaled or exceeded once. However, the periodicity of flood event is not implied by the flood recurrence interval assigned.

The floodplain parallels the stream courses onsite and varies in width based on downstream location and input from smaller drainages that originate within the park boundary. Near the southernmost part of the park the 100-year floodplain is at its smallest inundation approximating 90 feet in width. Just to the east of the Filene Center the floodplain widens to nearly 400 feet. This floodplain width is approximated from the center to the pond. To the west of the pond the floodplain widens and reaches its maximum extent approximating 600 feet just to the west of Trap Road and the east lot.

Several structures are currently sited within the delineated 100-year floodplain within the park boundary. This includes the Theatre-in-the-Woods, the meadow restroom just to the northeast of the Filene Center, and the meadow kiosk east of the dinner tent cluster.

WETLANDS

The U.S. Fish and Wildlife Service has completed a wetlands inventory for the park in accordance with the National Wetlands Inventory program. Wetlands were delineated based on the criteria specified in the publication *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979).

Based on this criteria, the park contains five wetland types. Wolf Trap Run and Old Courthouse Spring Branch are classified as upper perennial, riverine habitats with unconsolidated bottoms and with some form of impoundments along the creeks. The pond classifies as an artificial (i.e., impounded) permanently flooded, palustrine habitat with an unconsolidated bottom. The area west of Trap Road on both sides of the creek between the maintenance yard and Trap Road is classified as temporarily flooded, palustrine habitat with broadleaved deciduous forest — essentially what is recognized bottomland hardwood wetlands. The seep area just east of Wolf Trap Road as you enter the park from the north is also broadly classified as bottomland hardwood wetland. The final wetland area is just south of the seep area and north of Wolf Trap Run. This wetland is classified as palustrine with both persistent emergent vegetation and broadleaved deciduous, scrub-shrub vegetation that is seasonally flooded.

VEGETATION

Appendix C contains a list of vegetative species in Wolf Trap Farm Park. The park is a combination of forest, meadow, grassland, and parkland including both developed and undeveloped areas. Within the park's 130 acres, 60%, or 78 acres remains as forest community providing a biologically diverse vintage of the eastern deciduous forest. Approximately 24 acres have been developed for access, trails, and structures. This development has type converted approximately 18% of the park's original natural setting into one that supports the cultural events and activities associated with Wolf Trap.

The various types of vegetative cover and the percentage of land area represented by each is shown in table 5.

TABLE 5: VEGETATIVE COVER
WOLF TRAP FARM PARK

Cover Type	Acres	Percent of Land Area
Parkland		
Open grassland	25	19
Open with trees	1	1
Developed	24	18
Upland hardwoods	37	28
Bottomland hardwoods	31	24
Pine	4	3
Mixed upland hardwoods and pine	4	3
Meadow	4	3
Total	130	100

The upland hardwoods, comprising about 28% of the park, consist primarily of dry site species such as chestnut oak, as well as mixed stands of red, black, white, and scarlet oaks. These oaks are in association with hickories, black cherry, and yellow poplar.

The bottomland hardwoods, covering about 24% of the park, grow in the lower areas within and near the floodplain. This forest community consists of moist site species such as American beech, yellow poplar, red maple, white oak, and sycamore, and within the floodplain, wet site species such as river birch, smooth alder, and black willow.

The size class of the upland and bottomland species range from sapling to sawtimber (4 inches to 16 inches) diameter at breast height. All forest stands appear healthy, well stocked, and have full crown development.

The park has several small stands of pine, predominately Virginia pine mixed with red cedar and a few pitch pines. There are numerous white pines in the park, but all

have been planted for ornamental or buffer purposes.

Along the eastern edge of the park is a meadow, most of which is in an "old field" successional stage where brush species such as broom sedge and goldenrod are being replaced by Virginia pine and red cedar. A similar area of old field succession lies at the northeast edge of the park along Wolf Trap Road. This area is predominately in brush vegetation. Due to its floodplain location, trees emerging onsite are limited to water tolerant species such as alder and river birch rather than Virginia pine (see the "Wetlands" section).

The understory tree species within the upland and bottomland forest consists primarily of dogwood, sassafras, hornbeam, and American holly and shrub species of mountain laurel and spice bush. Associated groundcover of these forest and field environments consists primarily of honeysuckle, blackberry, greenbriar, partridgeberry, and numerous patches of groundpine and staghorn clubmoss.

The open parkland area, representing about 20% of the park, consists of artificially maintained grasses (fescue and perennial rye) interspersed with chickweed, speedwell, orchid grass, dandelion, and ground ivy. Grass rehabilitation is a reoccurring problem at the park. Approximately 18 acres of the park are maintained as lawn areas. Of this 18 acres, 8 acres are used as parking areas. The use of grassy areas known as Gil's hill and the dust bowl has been extensive as the average Filene Center attendance and summer visitation figures continue to rise.

Available paved parking spaces number about 1,500 for visitor and employee parking. Because many patron vehicles must be parked on grass, soil erosion, compaction, and visitor safety problems are continuous and annual aeration is needed. Damaged grass areas are rehabilitated following each performance season by park maintenance staff. A mixture of grass types is used, yet is ineffective at producing a grass resistant to high traffic and abuse.

Grasses can maintain a vigorous green growth with adequate precipitation. However, during typical dry, hot summer conditions, the grasses are usually dormant and browning, and they are vulnerable to damage by physical crushing and wearing of the leaf blades. Once the fields have had significant aboveground damage in a dry condition, they are inherently unstable and at risk to continued damage. Further wear and abrasion by vehicular traffic can damage the root crowns, causing permanent negative effects. The open, dry surface of the soils are also vulnerable to erosion during rainfall, further degrading the appearance of the fields and the integrity of the grass.

The grasses and the soil structure are usually more severely damaged when vehicular traffic occurs during wet soil conditions. Surface vegetation leaf blades are compressed downward into moist soils and can be crushed or abraded. The grass root crowns are also compressed, affecting root systems and retarding new growth.

The grasses and soil are most susceptible to damage when the soil is near or at its field capacity. Field capacity of a soil is the percentage of moisture remaining after free drainage by gravity has ceased in a saturated soil. As field capacity is approached, soil particles and grass roots become compacted and the larger macropores (relatively large spaces in between soil particles) become compressed, losing their ability to optimally

hold and transmit air and moisture. Root subsistence and growth as well as countless soil organisms responsible for a healthy grass are immediately affected, as aerobic processes are reduced. When water is supplied to compacted soil, the water occupies the compressed macropores and micropores for a longer period, further degrading the oxygen availability to the roots and negatively affecting the grass.

Another type of grass damage has been caused by radiated heat from catalytic converters on vehicles. Even when the grasses are green or not dry enough for combustion, they are scorched by radiated heat from the converters.

In the vicinity of the Filene Center and other park buildings are several landscape beds planted with ornamental shrub species such as juniper, pine, holly, forsythia, and hibiscus.

The vegetation of the park is under the usual stress placed on vegetation environments within a suburban area. The vegetation management program consists of management of nuisance plants, grass, meadow, exotic plants, hazardous trees, and planting plans. The primary nuisance plant is poison ivy, which is removed in high use areas. The planting plan is a formal landscaping plan that is an integral part of visual quality management. The meadow management plan is intended to preserve the biodiversity of the natural zone of the park. Exotic plant management efforts include identifying problem areas of encroachment and eradication of exotics.

WILDLIFE

The park's dominant vegetative types serve as habitat for a diversity of wildlife species (see appendix D). Mammals representative of the field and edge habitats as well as the forest are raccoon, opossum, gray squirrel, eastern cottontail, and skunk. White-tailed deer and gray fox, larger mammals indigenous to upland forests, are rarely sighted in the park due to its proximity to developed areas and to the small size of forest habitat. It is probable that the range of animals in the park also extends into adjacent lands owned by the National Wildlife Federation due to the contiguous relationship of the sites and the similarities in habitat.

Several species of amphibians and fish inhabit the stream environment of Wolf Trap Creek (see appendixes D and E). Also, near the northwestern edge of the park, the 2-acre farm pond serves as habitat for several fish species and wintering species of waterfowl.

The park's wildlife management program deals with Filene Center bird management, bluebird monitoring, and inventorying of all species within the park. Filene Center bird management is necessary to ensure that park visitors and center facilities are not impacted by wildlife activities. The design of the new theater has eliminated many of the roosting and nesting areas; however, continued monitoring is required to counteract any unforeseen potential situation within the center that might arise from bird activity.

A bluebird monitoring program was established in the park in the mid-1980s. Monitoring of 11 bluebird boxes continues today. Bluebird nesting has been consistent each summer, and an increase in the

numbers of this declining species has been observed. An inventory of all bird species within the park is to be conducted, complied, and published for distribution to visitors. See appendix F for a list of bird species identified in park area.

The park's integrated pest management program consists of gypsy moth, termite, hymenopterous insects (bees), and rodent management. The gypsy moth (an exotic species) project remains a high priority because of the potential for devastating effects on the park's forested areas. For example, defoliation would greatly reduce the ability of park vegetation to serve as a noise buffer between the Dulles Airport access and toll roads and the park. In 1993 there was a substantial increase in male moths and egg masses were found. It will likely be necessary to take action to control the moth in some portions of the park. Fairfax County continues to spray near park lands and in adjacent residential areas.

Wood-damaging insects remain a annual concern and require expenditures for eradication and control to protect park structures. Control of stinging insects remains a major visitor safety concern.

RARE, THREATENED, OR ENDANGERED SPECIES

According to the U.S. Fish and Wildlife Service, except for occasional transient individuals, no federally listed or proposed endangered or threatened species are known to inhabit Wolf Trap Farm Park (see appendix G). No biological assessment or further endangered species consultation is required. In addition, based on the assessment of staff biologists with the Department of Conservation and Recreation, Division of Natural Heritage, Commonwealth of Virginia, the potential for locating rare species or unique natural communities is very low based on the assessment of soil types, geologic features, topography, consultation with the Biological Conservation Datasystem, and staff expertise (see appendix G).

CULTURAL RESOURCES

The setting of Wolf Trap Farm Park, which is comprised of rolling hills and wooded fields, provides a rural atmosphere amidst a highly developed area. However, many changes have occurred to the site since its use as a country retreat and small farm. With the development of the surrounding area, as well as the park site itself, most of the physical elements of the farm have disappeared. The manipulated land for farm crops, the corrals and animal pens, and the supporting outbuildings have long since been removed from the area. However, some of the farm period structures remain. Although the farmhouse and barn have been dramatically altered, they provide a visual anchor to what used to be the core area of the farm. These structures, as well as the smokehouse and springhouse ruins, represent the farming function of the site and provide a sense of what the site used to be.

The other structures that existed during the Shouse residency, the cabin (ranger station) and the children's house, were not used for farming activities.

In 1975 a survey and evaluation for the National Register of Historic Places as conducted on the farmhouse. It was determined at that time that the building was ineligible for listing on the national register. In 1996, an evaluation was conducted on the structures at Wolf Trap, and a determination of eligibility for listing on the national register was completed. The National Park Service, in consultation with the Virginia state historic preservation officer, has determined that these structures are not eligible for listing on the national register.

Other structures, such as the Filene Center, the plaza and its buildings, the restaurant services support building, the Theatre-in-the-Woods, the concert shell, and the shelter, were erected after NPS acquisition of the site to facilitate performances and their associated activities. These structures were designed to be compatible with the natural setting of the park.

The following is a description of the structures that exist on Wolf Trap Farm Park. With the exception of the main house, the remainder of the structures were constructed during the late-1940s through the 1990s, many of which have had subsequent alterations. Comprehensively, this group of structures form an eclectic collection used for park operations but are reminders of the farming operations that once existed on the property.

Farmhouse – The farmhouse that currently exists is a building that has experienced additions and alterations through the course of years since the original cabin portion was built in the late 17th century. The cabin was a small one-room, one-story log and mortar building that was enlarged as the needs of the occupants changed. When the Shouses acquired the farm, the house was used as the main residence, with many support farm buildings. Additions made during the late 1600s, mid-1800s, and a series of renovations in the 1930s by the Shouses, resulted in the current two-story, multiple room house. Subsequent alterations occurred throughout the Shouse ownership and after NPS acquisition of the property.

Haybarn – This structure, north of the farmhouse, was erected in approximately 1945. Originally, the structure was a pole and beam wooden skeleton supporting a gabled roof. Completely open, the structure was used for hay storage for the farm's horses. In the mid- to late-1960s, board-and-batten siding was added to enclose the building, making a two-story structure with a hayloft. As such, the structure appears to be older than its actual completion date. Currently, the open room barn is used for park electric cart storage.

Smokehouse – This structure was built in 1948–49. This small rectangular structure has a front gable roof and one room that was used for smoking meats and was built as a support building to the farm. This log structure was completely rebuilt and remortared in the 1970s and placed on a concrete foundation.

Ranger Station (Guest to Wolf Trap Cabin) – This log cabin was relocated from a site near Fredericksburg, Virginia in 1948. Its original construction date is unknown. It was rebuilt into a one-story, rectangular guest cabin with a side gable roof and a stone chimney. A brick addition was added to the rear of the building prior to 1963. In 1976, the National Park Service dismantled, replaced logs, and remortared the log portion of the cabin. The structure is currently used as a visitor contact and ranger/first aid station.

Associates Building (the children's house) – Located to the northeast of the main house, this one-story, brick building was constructed in the 1940s as the children's house during the Shouse residency. In the early 1960s, use of this property was donated to the American Symphony Orchestra League, which made alterations to the structure. After NPS acquisition of the property, other additions were made to the house, including a trailer added to the rear of the building in the late 1960s by the American Symphony Orchestra League when it used the building. Today, the building houses the Wolf Trap Associates' office. The trailer currently facilitates park operations. In 1996, an 8,500-square-foot deck was added to the south side of the house overlooking the meadow for Wolf Trap donor entertaining.

Springhouse ruins – This concrete block rectangular structure, approximately 9 feet in length, 8 feet in width, and 4 feet in height, was used to cover the opening of a small spring in the meadow. The construction date is unknown and the structure is deteriorated.

Within the area around the farmhouse, several structures were erected by the National Park Service to facilitate park operations and use during performances at the Filene Center. These include a shelter with a patio and tent, a restaurant deck and tent, and a support building for the restaurant. The shelter, constructed in 1977, is located west of the main house. This one-story, two-room structure is rectangular with a side gable roof and is constructed in the hewn log style, which is compatible with the design of the smokehouse and the former guest cabin (currently the ranger station). There is a large open room along with a smaller storage room. Often used as a weather shelter during outdoor receptions, this structure also houses donor events in coordination with Filene Center performances. The restaurant support services building, which supports the kitchen

facilities and offices for the restaurant and catering functions, is located just north of the haybarn. Constructed in 1996, the design of board-and-batten walls and a gabled roof with a cupola is compatible with the architectural design of the barn.

The structures in the meadow area include a concert shell, the springhouse (see above), and a restroom facility. The concert shell is located on the northwest corner of the meadow and is used for small presentations. Comprised of a wooden platform stage and a back wall, this structure was erected in 1983, replacing a former band shell. The restroom facility is located at the southeast area of the meadow. Constructed in 1985, this wooden structure is rectangular in shape with a side-gabled roof.

The Theatre-in-the-Woods is located in the forested area north of the open meadow. This structure was constructed in 1977, replacing an earlier structure that was destroyed by a fire in 1976. This performance facility is used mainly for school groups and educational purposes. The structure is an uncovered wooden platform stage with a rear wooden backdrop and side wings.

In the plaza area, structures facilitating concessions, ticket sales, and park operations are dispersed around the paved area. The concessions and ticketing structures are utilitarian in design, being one-story tall and having window openings to serve ticketing and concessions sales. The U.S. Park Police, the usher operations, the administration of the box offices, and the press offices are housed in two pre-fabricated structures. These structures are all associated with the Filene Center performances and were constructed in the 1970s and 1980s.

The existing Filene Center was completed in 1984 to replace the original Filene Center that was destroyed by fire in 1982. This structure is constructed of Douglas fir with a metal skeletal support system. The center part of the structure is 13 stories high, or 138 feet tall. The seating area under the copper roof is two levels, with the upper level accessible from the plaza level.

The park has a small curatorial collection that is housed at MARS, a centralized curatorial facility in the National Capital Field Area.

Over the course of its existence, Wolf Trap Farm has gone through several changes. Currently, this property facilitates one of the premier cultural and entertainment centers in the nation. One of the factors important to its success is its setting. Located within suburban northern Virginia, the natural environment and setting make this a unique entertainment facility. With the creation and construction of the Filene Center, the use and purpose of the property has changed. The farm and the country retreat of the Shouse family has been transformed into a public space. Where once there were crops and animal pens, there is an amphitheater, park structures, and parking lots.

Although the farm operations ceased in 1946 and the farming landscape is no longer present, there are natural and topographical features that provide scenic views and rural qualities. With the urbanization of northern Virginia, Wolf Trap provides a natural and scenic enclave within surrounding development. This atmosphere needs to be maintained and cultivated to preserve the presence and purpose of Wolf Trap Farm Park.

ACCESS AND TRANSPORTATION

MODE OF ARRIVAL

The mode of arrival for evening performances was observed during a popular concert held June 1 and 2 in 1992. These observations indicated that about 97.5% of all patrons arrived by private vehicle. The next largest group (2.1%) arrived by taking the Metro rail system to the West Falls Church Metro Station and riding the Metrobus from there to the park. About 0.2% of the patrons arrived by tour bus. It is estimated that about 0.1% of the patrons walked from their homes and less than 0.1% arrived by taxi. This mode of arrival distribution is considered representative of most performances held at Wolf Trap Farm Park.

From observations of attendance data for the 1993 season and arrivals by Metrobus passengers, only 1.5 % arrived by this mode.

VEHICLE OCCUPANCY

A vehicle occupancy survey was conducted during several performances during June and July 1992. The number of passengers riding in private vehicles was observed and recorded as the vehicles entered the park.

According to this data about 78% of the vehicles had only one or two occupants. The vehicle occupancy rate varied somewhat depending on the type of show, ranging from 2.05 to 2.40 persons per vehicle. The average occupancy was determined to be about 2.2 persons per vehicle for a typical performance.

VEHICLE CLASSIFICATION

Private automobiles and light pickup trucks made up 99.7% of the vehicles at the concerts. There were no vehicles with trailers, RVs, or large trucks. Only three motorcycles were observed onsite each night. There were between six and nine buses onsite each night — two Metrobuses, one tour bus, and three to six buses for the performers. There were also one or two large tractor-trailer trucks onsite that carried the performer's stage sets and equipment.

TRAFFIC CIRCULATION AND PARKING

Field observations indicate that about 70% of the concert patrons arrive via Trap Road at the south entrance to the park. The vast majority of these people use the Dulles Toll Road. The other 30% of the vehicles arrive through the north entrance on Trap Road. These vehicles use the Leesburg Pike, (Virginia Highway 7), Towlston Road, and Trap Road to access the site.

Parking begins about two hours before show time. Traffic congestion does not typically occur on the approach roads to the site until 20 to 30 minutes before the concert. At this time the rate of arrival exceeds the parking area loading rate and vehicle queues form at the entrances and do not dissipate until about 5 or 10 minutes after show time.

The loading of the onsite parking lots occurs in an orderly and efficient manner. NPS park rangers direct drivers to several separate parking areas at a time throughout the evening loading process.

Park rangers load the large grass areas first because the early traffic arrives at a slow uniform rate which works well with the relatively slow loading time associated with parking in large grass areas. After the large grass areas are full, the remaining vehicles are directed to the paved lots. Finally, the small grass parking areas are loaded and vehicles are allowed to park on the shoulders of Towlston Road.

When all of the onsite parking areas are filled, patrons are turned away at the entrance, causing them to seek parking in nearby residential neighborhoods.

The exit process at the end of a performance results in a high level of congestion. This occurs because patrons are trying to leave at the same time on two exit routes. Each of the routes is essentially a single exit lane. The exit traffic to the south has to form a single lane prior to crossing the bridge over the toll road. The access ramp onto the toll road is also a single lane. The exit route to the north is reduced to a single traffic lane by vehicles parked along Towlston and Trap Roads.

The exit process is also greatly impaired by pedestrians walking on the roads. People who park outside of the park usually walk in the road because there are no sidewalks or street lights. This includes Trap Road north to Shouse Village and south over the toll road bridge to the Barns at Wolf Trap. The queue of vehicles exiting the park to the south does not dissipate until about 55 minutes after the show. The vehicles exiting to the north do so with minimal delay after they are out of the parking areas.

Some vehicular delays occur at the signalized intersection of Towlston Road and the Leesburg Pike. Northbound traffic divides into two traffic lanes on the immediate approach to the intersection. Although the right lane holds the majority of the traffic volume, it moves quickly with the vehicles turning right on red. There is very little opposing traffic on Leesburg Pike between 10 P.M. and 12 midnight and the intersection functions relatively well under exit conditions.

PARKING INVENTORY

The onsite parking, road network, and sidewalks are insufficient to handle the volume of vehicles and pedestrians attracted to many Filene Center performances. Thus, the burden of parking and traffic congestion is placed on the adjacent neighborhoods during many performances. Patron frustration runs high when the onsite lots are full and they are turned away to seek parking in surrounding residential areas. This typically happens as the performance is about to begin. Additional seating capacity or concurrent performances would exacerbate this problem.

Sold-out performances generate 3,400 vehicles, including staff and performance support. Using a staff intensive system of guiding cars to informal parking spaces as well as to striped lots, as many as 2,750 cars are routinely accommodated within the park during sold-out performances. If 2.5% of patrons use alternative modes of arrival, there is a deficit of 470–500 spaces to meet patron needs during major events.

Wolf Trap Farm Park has a total of 1,458 designated paved parking spaces in four major paved parking lots. The largest paved lot is the west lot which has 900 marked spaces and is located on the west side of Trap Road. The east lot, located on the east side of Trap Road, has a semicircular layout and 350 marked spaces. The third paved lot

is located behind the Filene Center. This lot has 138 spaces, and is used by employees, production staff, and performers. The lot has five designated spaces for visitors with disabilities. This lot is also used by large trucks and buses associated with the performers. The fourth lot is for patrons with disabilities and has 70 spaces. It is directly south of the Filene Center.

Another 132 paved parking spaces are available in several minor parking areas. These parking spaces are located along the circle drive, the stage road, the new accessible lot next to the Filene Center, and in the Associates parking lot. This brings the total number of designated paved parking spaces to 1,590.

Parking is permitted in several grass areas within the park. The number of vehicles that can be parked on the grass areas varies from performance to performance because the grass areas are not striped. The park can accommodate approximately 1,242 vehicles within the grass areas. Between 100 and 250 vehicle spaces are lost during periods when the grass is wet. These spaces are lost in areas where the slope of the ground is too steep to safely park vehicles.

Table 6 identifies 16 different areas that are traditionally used for performance parking within the park. As indicated earlier, when the onsite parking fills to capacity, the remaining vehicles are forced to park offsite in the surrounding neighborhoods.

Historical data indicated in 1990, that onsite parking filled to capacity nine times. In 1991, it filled to capacity 19 times; in 1992, 27 times; and in 1993, 35 times.

TABLE 6: CURRENT PARKING INVENTORY

Parking Area	Spaces
West parking lot	900
East parking lot	450
Gil's hill	650
Gil's hill mass parking	60
Dust bowl	210
Dimple (circle)	126
Accessible parking lot	70
Parking lot #1	138
Filene Center drive-thru	6
Stage Road	6
Associates lawn	45
Parking lot #3	30
Tunnel mass parking	38
Marque mass parking	23
Total	2,752

PEDESTRIAN TRAFFIC

Pedestrian traffic between the parking areas and the Filene Center conflicts with the vehicles on the roads and in the parking areas before and after performances and subsequently slows the parking area loading and unloading process.

A 20-foot-wide pedestrian tunnel under Trap Road has eliminated the largest potential pedestrian/vehicular conflict. The greatest amount of pedestrian/vehicular conflict now occurs at the junction of Barn Road and the circle drive, which is near the pedestrian tunnel under Trap Road. Pedestrians walk through this intersection before and after the concerts. It is estimated that about 4,000 patrons walk along the circle drive during a 45-minute period after a show, resulting in a large number of pedestrian/vehicular conflicts.

About 1,000 pedestrians walk along Barn Road after a performance. The remainder of the show patrons use the various other paths and trails that lead to the parking areas.

During sold-out performances, it is estimated that about 400 pedestrians cross the toll road on the overpass structure (Trap Road Bridge). This is a two-lane bridge with no sidewalks. About 800 pedestrians walk along Trap and Towlston Roads north of the park to get to their vehicles in the adjacent neighborhoods.

SOCIOECONOMIC ENVIRONMENT

LAND USE

Wolf Trap Farm Park is located in north-central Fairfax County, Virginia. The majority of the county is developed or planned to be developed as suburban and low density residential uses. Mixed-use areas that contain residential, office, and retail uses are concentrated at points along the major transportation corridors of the county. Industrial areas are located either along the major transportation routes or near the Washington Dulles International Airport on the western boundary of the county.

The area around Wolf Trap Farm Park is surrounded by stable residential neighborhoods and scattered older farmhouses. Residences are primarily low-density, single-family detached units. There are few parcels remaining in agricultural use. *The Comprehensive Plan for Fairfax County, Virginia* (1991) recommends similar low-density residential development (predominantly one to two dwelling units per acre) for those infill areas that do exist.

There are no commercial or industrial facilities adjacent to the park. The Dulles Toll Road, along the southern boundary of the park, separates Wolf Trap from the expanding retail and office areas in Tyson's Corner.

Development along the Virginia Highway 7 corridor to north and east of the park is also low-density residential use. According to the Fairfax County comprehensive plan, the corridor should continue to be reserved for residential development and other uses would not be appropriate. One office development within the corridor adjacent to the park is the headquarters of the National Wildlife Federation.

POPULATION AND EMPLOYMENT

The 1990 total population of the Washington, D.C. metropolitan statistical area (MSA) was 3,923,574 and the total population of Fairfax County was 818,584 (U.S. Census, 1990).[1]

The 1990 U.S. Census found that residents of the Washington, D.C. MSA are predominantly Euro-American (65.8%) and African-American (26.6%). The population of Fairfax County is also primarily Euro-American (81.3%). However, Asian and Pacific Islanders (8.5%) comprise a larger proportion of the population than African-Americans (7.7%)(Standard Report, 1993). Approximately 12% of residents in the Washington, D.C. MSA were not born in the United States (U.S. Census, 1990).

Fairfax County's proximity to Washington, D.C. and Dulles International Airport has encouraged many businesses to locate in the county and many commuters to live there, resulting in sustained population growth. Table 7 shows the actual and projected total population and population changes from 1970 to 2020.

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1. The 1990 Washington, D.C. MSA included Fairfax County, Virginia; Arlington County, Virginia; Loudoun County, Virginia; Prince William County, Virginia; Stafford County, Virginia; City of Alexandria, Virginia; City of Fairfax, Virginia; City of Falls Church, Virginia; City of Manassas, Virginia; City of Manassas Park, Virginia; Calvert County, Maryland; Charles County, Maryland; Frederick County, Maryland; Montgomery County, Maryland; Prince George's County, Maryland; and the District of Columbia.

TABLE 7: ACTUAL AND PROJECTED POPULATION, FAIRFAX COUNTY, VIRGINIA – 1970 TO 2020

Year	Total	Average Annual Increase	Average Annual Growth Rate
1970	454,275	–	–
1980	596,901	11,940	2.1%
1990	818,584	30,057	4.1%
2000	942,000	12,700	1.4%
2010	1,065,800	12,600	1.2%
2020	1,204,500	14,300	1.2%

SOURCE: *Standard Report (1993)*, Fairfax County, VA.

The area population is very affluent. Of all the counties/cities in the United States, Fairfax has the highest percentage (25.3%) of workers employed in executive, administrative, and managerial positions (U.S. Census, 1990). The neighboring counties/cities of Alexandria, Arlington, and Falls Church to the east of the county and closer to Washington, D.C., ranked second, third, and fourth, respectively.

The area also maintains a low unemployment rate. The 1990 unemployment rate for the Washington, D.C. MSA was 3.7% and for Fairfax County was only 2.5%. The national unemployment rate was 13.1% (U.S. Census, 1990).

Residents in the area are highly educated. More than 85% of residents 25 years and over from the Washington, D.C. MSA have graduated from high school (U.S. Census, 1990). Fairfax County ranks sixth among all U.S. counties/cities with 49% of residents having a college degree, compared to 20% for the nation.

Median income levels reflect these conditions. Table 8 compares the median family income and median household income for Fairfax County, Washington, D.C. MSA, and the nation.

TABLE 8: MEDIAN FAMILY AND MEDIAN HOUSEHOLD INCOME – 1990

	Fairfax County, Virginia	Washington, D.C. MSA	United States of America
Median Family Income	$65,201	$54,094	$35,225
Median Household Income	$59,284	$46,884	$30,056

SOURCE: *Standard Report (1993)*, Fairfax County, VA.

Housing prices are also high in the area, especially in Fairfax County. The median housing value for Fairfax County in 1990 was $213,800 compared to $79,100 for the nation (U.S. Census, 1990). The cost of rental units is also very high. Fairfax County ranked third among U.S. counties/cities with a median rent of $748. The median rent for the nation was $374 (Standard Report, 1993).

Despite the relatively high prices, the demand for housing in Fairfax County has continued to grow. In 1993, Fairfax County had a total of 316,723 housing units, an increase of approximately 50% from 1980 (Standard Report, 1993). These units are predominantly single-family homes (76%) with the greatest increases being seen in attached single-family units, which grew 134% since 1980 (Standard Report, 1993). The county also maintains a low rental vacancy rate. In 1993, the rental vacancy rate was 5.2% (Standard Report, 1993).

RECREATION

Within the area are several regional, state, and national parks. The Northern Virginia Regional Park Authority operates 11 regional parks that offer a wave pool, landscape gardens, a nature center, athletic fields and facilities, and camping and hiking opportunities. George Washington Grist Mill and Mason Neck are state parks in the county. In addition to Wolf Trap Farm Park, Great Falls National Park and George Washington Parkway are managed by the National Park Service. The U.S. Fish and Wildlife Service also maintains the Mason Neck Wildlife Refuge. Manassas is also partly in Fairfax County.

The county park system is operated by the Fairfax County Park Authority and provides a variety of recreational opportunities for county residents. The park system also serves as the primary public mechanism for the preservation of environmentally sensitive lands, water resources, and areas of historical significance. The park authority owns and maintains more than 16,400 acres in 351 parks, approximately 7% of the developable land in the county (Park Comprehensive Plan, 1994).

In addition to the park authority, many other jurisdictions and private groups provide open space and parklands. Nearly one-fifth of the land base in the county is combined public and private open space (Park Comprehensive Plan, 1994).

PATRON EXPERIENCE

A study of patron opinions was conducted for the National Park Service July 16–25, 1994. A total of 775 questionnaires were distributed at and 551 were returned. This represents a 71% response rate. Patrons were asked about the size of their party, mode of arrival, source of park/programming information, willingness to use a shuttle, opinions regarding programming, and what they like and dislike about the park.

Most noteworthy for the purposes of this plan were the responses regarding the importance of park features and attributes. A total of 79% of patrons rated the natural setting as being extremely important to very important. The value of picnicking as part of the Wolf Trap experience was very important to extremely important to 54% of respondents.

Regarding use of shuttle service, 51% said they would be likely to use such as system if provided.

Focus group interviews with visitors and nonvisitors were conducted by Alan S. Newman Associates under contract with the foundation in March 1994. Visitors are extremely loyal to Wolf Trap and cited the following attributes that make them return year after year; affordable, outdoors, casual, comfortable, low key, relaxing, beautiful, safe, accessible, friendly, picnics, good programming, a special place. Nonvisitors have the following impressions of Wolf Trap; relaxed, fun, hard to get out, uncomfortable, buggy, hard to find, too far away, good programming, family oriented.

SOCIAL FACTORS – WAYS OF LIFE

Most current residents in Fairfax County and northern Virginia have a positive outlook on their quality of life rating the area as a good to excellent place to live. Unprecedented economic growth over the past 10 years have brought changes that continue to shape the character of life in the area. Residential,

light industry, and office development near Wolf Trap mirror suburban growth patterns of the metropolitan area that provides 99% of the park's visitors. In this conglomerate are many neighborhoods composed of residents who feel akin to other people in their communities. Although community identity and pride are strong, over 50% of the residents express a need for more activities that build a sense of community.

In spite of rapid growth in northern Virginia, the communities around Wolf Trap have a stable population. The mean residency length in Fairfax County is 12.5 years; the mean neighborhood residency is over 8 years. Almost 75% of households own or are buying their residence, and over 50% feel they will remain in Fairfax County at least five more years. While 50% of the residents believe growth has enhanced their quality of life and 80% feel a strong economy and jobs are important, many express support for controlling the rate of change. Most are concerned about impacts on neighborhood quality from an influx of people, loss of privacy, increased traffic levels and congestion, and noise.

Almost 90% of residents feel somewhat to very secure in their life. Over 50% think business conditions are very good, and most believe their job and financial situation will remain the same or improve in future years. Most think people in their neighborhood can be trusted and that community services, including law enforcement, crime prevention, and emergency health services are adequate. Almost 80% rank drugs and crime prevention of great importance and would resist any area developments that are perceived to increase the potential for such activities to threaten their security.

A majority of Fairfax County residents believe the wide variety of leisure and cultural opportunities offered in the Washington, D.C. metropolitan area play an important role in their quality of life. The most popular recreational activities ranked by number of participants are: visiting parks to enjoy the outdoors, hiking/walking, picnicking, visiting historic sites, gardening, visiting nature centers, recreational swimming, and bicycling. Almost 50% of the residents attend outdoor concerts, making the rate of participation nearly identical to that of bicycling, although concert attendance for most is an occasional event, not a regular leisure activity. Many area residents, however, are supporters of the arts attending multiple events each year. In 1989, 75% of Fairfax County adult residents attended a live performing arts event or had visited a museum or an art gallery. Of the group, 79% attended performing arts events.

A majority of residents in the area surrounding Wolf Trap demonstrate a strong environmental consciousness. Over 80% feel local governments should require more attention to environmental issues, including stricter recycling programs and tighter controls on growth and land use. Almost 60% favor developing and renovating existing athletic and recreational parks and restricting land acquisition to preservation of historic or environmentally sensitive areas. A majority of those surveyed preferred conserving open space parks. Wolf Trap Farm Park, a 130-acre oasis of green space in this suburban environment, provides opportunities for outdoor experiences and is a valuable asset to the cultural life of Washington and the surrounding metropolitan area.

OTHER STUDIES

The Fairfax County Park Authority has recently completed a *Park Comprehensive Plan.* The plan examines existing conditions, future opportunities, and issues and concerns to determine appropriate criteria, standards, and service levels.

The Virginia Department of Rail and Public Transportation recently sponsored a major investment study to develop long-range transportation plans for the Dulles Corridor. The corridor follows the Dulles Toll Road from I-495 west to Dulles Airport. The study endorses the extension of Metro rail service from the West Falls Church station to Dulles Airport and beyond into neighboring Loudoun County. The plan includes provisions for a station at Wolf Trap Farm Park. Funding mechanisms were identified as part of the project but funding has yet to be secured for the project. However, even once funding is in place, the Virginia Department of Rail and Public Transportation has stated the stop at Wolf Trap would be redundant to regular commuter needs and would therefore be the responsibility of others to finance.

OTHER PERFORMING ARTS VENUES

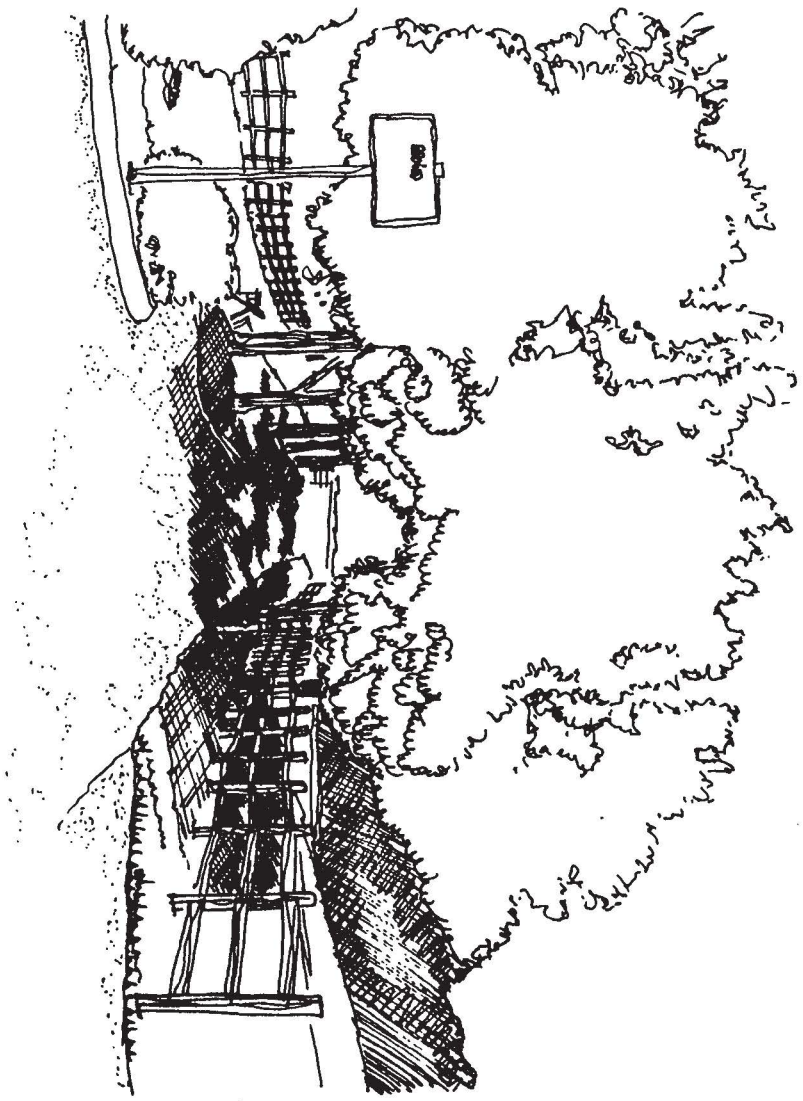
The national success of amphitheaters during the last five years has lead to record gross ticket sales and a flurry of new amphitheater construction. Increases in attendance indicate the public's enjoyment of the outdoors concerts. In 1994, 30 concert events (including multiple days) topped the $1 million mark, which was three times the 1993 number and more than twice the previous record of 12 in 1992. With this boom in business, new linkages have been formed between traditional concert promoters, music entertainment companies, and others in the development of amphitheaters. During the last decade more than 20 amphitheaters have been constructed, making a total of over 60.

New amphitheaters that opened during 1993 and 1994 include Polaris Amphitheater in Columbus, Ohio; Navy Pier's Skyline Stage in Chicago; and Glen Helen Blockbuster Pavilion in Devore, California. Scheduled for 1995 openings are Meadows Music Theater near downtown Hartford, Connecticut; Blockbuster Sony/Music Entertainment Centre in Camden, New Jersey; and the Nissan Pavilion at Stone Ridge near Manassas at Gainesville, Virginia. Cellar Door Companies, developer and promoter for the Nissan Pavilion, is also building an amphitheater to open next year in Virginia Beach. Hamburg, New York, will also have a new amphitheater in 1996, and some existing amphitheaters are being renovated to add more seats and amenities to help attract audiences and performers.

In the Washington, D.C. metropolitan area, Wolf Trap has shared the area audiences with one other amphitheater, the Merriweather Post Pavilion in Columbia, Maryland. The Post Pavilion was built in 1967 and is about 30 miles from Wolf Trap (approximately 35 miles driving). Merriweather Post Pavilion appears to draw its audiences mainly from a market consisting of Baltimore and Central Maryland, while Wolf Trap's audiences are mostly from Washington and northern Virginia. There is some overlap and it has been estimated that 30% of each venue's audience comes from the other's market.

The Nissan Pavilion at Stone Ridge is the largest entertainment facility to be built in the Washington, D.C. area in 20 years. Its total capacity of 25,000 will include 10,000

reserved seats under a roof and 15,000 lawn spaces. This gives the Nissan Pavilion 10,000 seats more than Merriweather Post Pavilion and 17,000 more seats than the Wolf Trap Filene Center. The Nissan Pavilion is about 20 miles from Wolf Trap (approximately 26 miles driving), and its market will overlap that of Wolf Trap and Merriweather Post Pavilion.



ENVIRONMENTAL CONSEQUENCES

IMPACTS OF ALTERNATIVE 1 (CONTINUATION OF CURRENT MANAGEMENT PRACTICES)

This alternative, considered the no-action alternative, maintains the existing management philosophy for visitors and patrons to Wolf Trap Farm Park. This management approach would continue to place the responsibility of access directly on the individual patron. The use of privately operated vehicles for access purposes requires that parking facilities be maintained at existing levels in the park to accommodate patron needs during peak visitation periods.

Although parking at the site would remain at the current levels, minor alterations of the present configuration would provide a safer, more accessible experience for the patron. Minor realignment and configuration of the pedestrian network at Wolf Trap Farm Park would also be undertaken in this alternative to provide greater safety and easier pedestrian movement.

IMPACTS ON NATURAL RESOURCES

Continued grass parking may have an impact on the park's natural resources; however, the improvements in parking configuration and enhanced pedestrian movement would mitigate the impacts associated with the proposed actions. Specific resource impacts are discussed below.

Air Quality

The air quality and air quality values would remain unchanged by actions proposed in this alternative. Access to the site by private vehicles would continue at the existing level and concentration. During performance events, it is expected that high amounts of mobile sources of pollutants (such as carbon monoxide, nitrogen oxides, sulfur oxides, fine particulates, and reactive organic gases) would continue to be concentrated in the vicinity where traffic congestion occurs as a result of patron arrivals and departures. The National Park Service would not actively pursue alternative methods for patron access such as mass transit programs or offsite parking facilities.

There would not be a net increase in parking within Wolf Trap Farm Park.

Wolf Trap Farm Park is situated in an area of nonattainment with the NAAQS for carbon monoxide and ozone. Section 176 of the Clean Air Act requires any action on the part of a federal agency in a nonattainment area to conform to the state's efforts to attain and maintain these standards which are applicable to this plan for the two pollutants documented. Since there would not be a net gain in parking spaces within the park, only a redistribution of that parking allocation, then actions proposed would be in conformance with the Clean Air Act.

This alternative proposes the improvements in pedestrian circulation through widening of walkways. Short-term air quality impacts would result from fugitive dust/fine particulate matter during construction activities. However, any associated temporary emissions from the construction equipment would be less than the conformity of minimal levels established for carbon monoxide and ozone within the region.

Grading and construction activities associated with walkway improvements would also cause short-term fugitive dust within the area. However, the amount of suspended particulates associated with this action would be mitigated through the use of appropriate soil watering techniques and suspension of construction activities during high wind velocity periods (greater than 25 miles per hour).

Soils

Grading and filling activities associated with establishing pathway grades would directly impact those soil types within the footprint and work area of the proposed activities. This includes grading on slopes ranging between 0% and 20%. Approximately 50% of the proposed pathway developments would take place in soil areas classified as moderately suitable for development actions. The remaining proposed actions would occur in soil types classified as the most suitable areas for such actions.

Specific soil types to be impacted by some of the trails include the Meadowville and Glenelg, rolling soil classes. These soil types often have a high water table and are considered moderately suitable overall for development actions.

Other path alignments would impact the Glenelg, undulating; Glenelg, hilly; Manor, rolling; and the Glenville soil types. The Glenelg and Manor series soil classes all have basically the same characteristics and suitability. This specifically includes a class of soils with good drainage characteristics, fair suitability for roadway development, good suitability for structures and low shrink swell potential. The special considerations for this group includes highly erodible characteristics for the Glenelg, undulating soil type and the Manor, rolling soils class. All of these soils are considered suitable for development purposes.

The other soil class where trail improvements are proposed, the Glenville series, is considered moderately suitable for development actions. The soil has poor drainage characteristics and poor suitability for road development. It is considered fair for structural settings and has a low shrink swell potential. High water tables are encountered within this soil series.

Compaction of the soils would continue in those areas of the park where patron parking was permitted on the grass areas. The major areas of disturbance includes the west lot, east lot, Gil's hill, and dust bowl areas. It is estimated that this activity would continue on these 15.56 acres. In order to keep the grasses maintained, the park would need to allocate, on a long-term basis, the fiscal and personnel resources to ensure that proper aeration and maintenance are continued. Soil conditions would need to be monitored to ensure proper vegetative cover (grasses) were present to reduce the potential for soil erosion during extremely hot, dry periods. The soil within these areas is also subjected to damage when it is at or near its water retention field capacity. The impacts of motor vehicles traveling on the grassy areas during wet periods could further increase the potential for vegetative cover loss and erosion. Finally, there would be a long-term potential for soil contamination from automotive oil leaks and other discharges with the continuation of parking in these areas.

Water Resources

The most significant impact on the water resources within Wolf Trap Farm Park

would be to the intermittent stream that flows from the southern park boundary toward the Filene Center and confluences with Wolf Trap Run. This stream segment has been altered due to encroachment of urban development from external sources to the park boundary. In particular, the Dulles Toll Road, adjacent to the park's boundary crosses the drainage. External development actions have changed the water quantity and quality of the creek's surface water regime.

Approximately 0.53 acre of permeable area would be converted into impermeable conditions due to the widening of the park's pedestrian routes. This action would not have an adverse impact on the water resources and the water resource values of Wolf Trap Farm Park. Even though this represents a potential site-specific groundwater recharge loss, the surface waters in these locations would become sheet flow associated with those of the adjacent developed sites. The coalescing of these sheet flow conditions would contribute collectively as down gradient inputs to the system. Mitigation of these overland sheet flow conditions was provided for by past planning and design efforts.

Floodplains

The area of development for actions proposed by this alternative is outside the 100-year floodplain as determined by the U.S. Geological Survey in cooperation with the county of Fairfax. The only proposed action associated with this alternative that could possibly be within the 500-year floodplain is the proposed widening of the park's walkways. This type of action would not have an adverse impact on the floodplain and is considered excepted from compliance with the National Park Service's floodplain management guidelines in accordance with Executive Order 11988 ("Floodplain Management"). Therefore, there would be no associated impacts on floodplain values at Wolf Trap Farm Park through the actions proposed by this alternative.

Wetlands

All proposed actions would occur outside existing wetland areas as determined by site surveys and the National Wetland Inventory mapping program. Thus, there would not be any direct or indirect impact on wetlands or their associated communities.

Vegetation

Actions proposed by this alternative would not have significant impacts on vegetative resources of Wolf Trap Farm Park. Improvements to the trails and pedestrian network within the park would directly impact approximately 1,520 square feet (0.03 acre) of the parkland–with trees community. These impacts would be associated with the development of a trail between the Filene Center and the dinner tent facility. Impacts would occur in an isolated forest stand that is surrounded by grasslands and park facilities. This impact would not result in a change in biodiversity or species composition for this community type. Even though this classification represents a very small portion of the vegetation communities at Wolf Trap Farm Park (1% or 1 acre), it is not considered a significant contributor to the ecological viability onsite due to its disjunct location from a continuous forest cover and its location near major developed facilities onsite. The suitability indices for this area of the park are classified as most suitable for development actions.

Other proposed trail and pedestrian improvements associated with this alternative at Wolf Trap Farm Park would impact approximately 23,120 square feet (0.53 acre) of the parkland–open vegetation community. The area to be impacted is in a previously disturbed location that has been type converted from a deciduous forest community into a landscaped environment. Grasses associated with the community are nonnative species and have been maintained for aesthetic and functional purposes at the park. This community represents 25% of the vegetation found within the park or 19 acres. Development would reduce this cover by 3% from existing conditions. Actions proposed would occur in areas adjacent to roadways and sidewalks and are used excessively during high foot traffic events. Like the parkland, this vegetation classification is considered as one that is most suitable for development purposes. Implementation of this alternative would cause no loss of biodiversity or species abundance within this vegetation community.

This alternative provides for the continuation of grass parking for event patrons. This would continue to commit approximately 15.56 acres as of the parkland–open vegetation for parking purposes. This commitment would require the National Park Service to continue planting nonnative grass species that can best withstand the heavy traffic during the concert season.

Wildlife

Under this alternative, wildlife species composition and their associated habitats would remain comparatively the same as currently exists. It is expected that a short-term disruption of wildlife species would result from construction activities to develop the trail improvements. Both bird species and the small mammals in the vicinity of the construction would be displaced during construction. The core habitat along the riparian areas and in the upland and bottomland hardwood community types would remain unchanged and unaffected by this alternative.

Threatened and Endangered Species

The U.S. Fish and Wildlife Service has determined that no federally listed or proposed endangered or threatened species inhabit or use the study area, except for occasional transients. Thus, implementation of this alternative would have no effect on either endangered or threatened species or the critical habitat of such species within Wolf Trap Farm Park.

IMPACTS ON CULTURAL RESOURCES

Structures

Under this alternative, the appearance and uses of the structures would remain as they currently exist, which would be a positive impact.

Setting

The visual impact created by the parked cars on the grass areas would continue to have a negative impact on the setting of the site.

Archeological Resources

Archeological surveys would have to be conducted to determine if any resources or sites exist. If construction activities yield any

archeological resources or potential sites, these sites would be recorded, and mitigation measures would be developed in consultation with the Virginia state historic preservation officer and the Advisory Council on Historic Preservation, in accordance with 36 CFR 800.11. Impacts would be minimized through monitoring during the construction phase.

IMPACTS ON TRANSPORTATION

Under this alternative, similar to existing conditions, long-term seasonal negative impacts would be expected on the traffic circulation in the immediate area of the park before and after most performances. More specifically, high levels of congestion would occur at the end of performances, lasting nearly an hour after sold-out performances. Pedestrian/vehicular conflicts would continue to occur as patrons walk to their vehicles parked south of the overpass over the Dulles Toll Road, and along Trap and Towlston Roads north of the park to get to their vehicles parked in adjacent neighborhoods.

Pedestrian/vehicular conflicts would be reduced due to improvements to separate pedestrian and vehicular movements onsite and the provision of an overhead lighting system on main pedestrian corridors.

IMPACTS ON PATRON EXPERIENCE

It is the late-comers to a performance who are turned away from parking at Wolf Trap. Having to seek alternative parking at a distance from the park creates frustration for the patron who must walk along the roadway missing the opening of the performance. This same patron must walk along dark roadways packed with exiting traffic after the performance. This diminishes the quality of the experience and contributes to the potential for vehicle-pedestrian accidents. This would constitute a long-term negative impact for 1,000 to 1,200 patrons for each sold-out performance.

IMPACTS ON SOCIOECONOMIC ENVIRONMENT

Under this alternative, the neighborhoods immediately surrounding the park should expect long-term negative impacts from traffic and parking on neighborhood streets whenever capacity or near capacity performances are scheduled.

CUMULATIVE IMPACTS

Alternative 1 proposes to improve pedestrian walkways within Wolf Trap Farm Park. These actions would have a slight incremental impact on both the park's resources and the natural resource values from a regional context. Development actions that would reduce onsite resources include minor realignment and configuration of the trail network.

There would be no cumulative impacts on cultural resources under this alternative.

UNAVOIDABLE ADVERSE IMPACTS, RELATIONSHIP BETWEEN SHORT-TERM USES AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY, AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

This alternative proposes to continue long-term use of open grass areas for human

activities such as parking and foot traffic during major performances at the Filene Center. This action is considered an irreversible and irretrievable commitment of these resources.

The widening of the trails would provide for the long-term pedestrian access to the Filene Center with improved pathways providing greater protection and safety from the routes currently used.

There are no irreversible and irretrievable commitments to the cultural related values under this alternative.

IMPACTS OF ALTERNATIVE 2

Actions proposed in this alternative would include those developments proposed in alternative 1, which include proposals that would further alleviate patron inconvenience. In addition, this alternative would increase NPS involvement in mass transit programs for park access during performances. These site developments would assist in alleviating some of the traffic and parking problems in the neighborhoods adjacent to the park during major performance events.

IMPACTS ON NATURAL RESOURCES

Proposed improvements would alter the visual characteristics of the park and have direct impacts on the physical and biological resources within the park.

Air Quality

The short-term air quality impacts described in alternative 1 would be applicable to development actions proposed in alternative 2.

In addition, this alternative proposes to increase the number of parking spaces available to concert patrons within the boundary of Wolf Trap Farm Park. The total parking available onsite accommodates 2,752 vehicles. During major performances it has been estimated that as many as 2,887 vehicles have been onsite. After the onsite parking reaches its capacity, the remaining patrons must seek offsite parking in the surrounding neighborhoods. Between 470 and 500 additional spaces are needed to meet patron needs during major events.

Alternative 2 seeks to address this parking need by providing an additional 176 parking spaces within the park boundary. Although this increase would not meet the total need during peak periods, it would address the parking issue for most of the concert season.

Section 176 of the Clean Air Act requires any action on the part of a federal agency in a nonattainment area to conform to the state's efforts to attain and maintain these standards. Wolf Trap Farm Park is situated in an area of nonattainment with the NAAQS for carbon monoxide and ozone. In compliance with this act the National Park Service would work with the Commonwealth of Virginia and Fairfax County to conform with their air quality goals and assist these regulatory agencies toward attaining and maintaining these objectives. Specifically, the issue of increased parking onsite, even though constituting a redistribution of parking within the vicinity of Wolf Trap Farm Park, requires efforts by the National Park Service to mitigate any increased parking onsite. This would ensure that this agency's efforts are in conformance with the attainment plans for the region and that actions proposed herein do not contribute to incremental degradation of the air quality or the air quality related values for the park or the surrounding vicinity.

Soils

The impacts on soils described for alternative 1 would also be applicable to this alternative for those impacts associated with the grading and filling activities for establishing trail grades and trail alignment improvements.

Alternative 2 proposes increased paved surfaces for patron parking. Surface areas for the west and east lots consist of broken pavement and gravel. The spatial extent of these lots is approximately 10.02 acres. Proposed actions include grade establishment and paving. This would create a permanent impermeable surface at these sites and eliminate any potential chance that some surface waters might be available for soil/groundwater interaction and recharge. This would also eliminate the potential of soil erosion within these areas.

This alternative also provides for paved parking in areas where grasses and forest communities currently exist. This would directly impact 18.25 acres and permanently remove the soils in the developed area from productivity — specifically 5 acres at Gil's hill, 2.9 acres at the dust bowl, 1.32 acres in the dimple, 3.83 acres in the east lot, and 5.2 acres at the Gil's hill forest site. These soil types would no longer be available to allow surface water infiltration or provide nutrients to the system.

Soil types that would be directed impacted by these actions include those of the Glenelg, Manor, and Chewacla series. Within these series the following soil types would be affected:

Gil's hill — Glenelg (hilly); Glenelg (rolling); Manor (hilly)

Gil's hill forest — Glenelg (rolling); Manor (hilly)

Dust bowl — Manor (rolling); Manor (hilly); Glenelg (rolling); Glenelg (undulating)

Dimple (Circle) — Glenelg (rolling); Glenelg (undulating); Manor (rolling); Manor (hilly)

East parking lot (forest) — Glenelg (undulating); Glenelg (hilly); Glenelg (rolling); Chewacla; Rocky Land (steep)

The suitability for development actions within these soil types ranges from most suitable to least suitable. The area considered the least suitable for development is near the Wolf Trap Run stream near its stream channel where the northern portions of the east lot (forest) parking area is proposed. In addition, approximately 89%, or 5.5 acres, of the west lot would be paved in an area classified as least suitable for development actions.

A limited amount of development is proposed in those areas with soils composition classified as moderately suitable. These conditions exist primarily in the area where the east lot developments are proposed. Half of the expansion would occur in the east lot (circular portion) and the remainder at the lot's lower half area with approximately 2.6 acres cumulative impact. It also includes approximately 23% (0.66 acre) of the improvements proposed for the dust bowl.

All other actions associated with the improvements in parking facilities for alternative 2 would be in soil types considered most suitable. Nearly 50% of all parking area construction would occur in this soil suitability class. This includes

proposals for the dust bowl, dimple, Gil's hill forest, and Gil's hill (14.27 total combined acres).

Proposed trail realignments and improvements would impact 1.41 acres of soils in addition to those improvements specified by alternative 1. Nearly one-third of these actions would occur in areas within the upper hardwoods vegetation class. Site-specific development actions includes trails for both the west lot and a portion of the east lot (forest).

The remainder of trails development would impact those soils associated with the parkland – open vegetation classification. Similar to the parking area development, these actions would impact the Manor (hilly), Glenelg (undulating, hilly, rolling), Glenville, and Chewacla soil series. Soil suitability analysis is the same for these soil types described above for the parking improvements proposed in their area of occurrence.

Water Resources

The impacts on water resources described in alternative 1 would be applicable to proposed actions for this alternative. Actions proposed by alternative 2 would develop 18.25 acres associated with parking facilities and 1.41 acres for trail improvements/ developments. This is in addition to the 1.68 areas of impermeable areas discussed in alternative 1. This alternative also proposes paving the 10.02 acres within the semi-impermeable west and east parking lots.

Design considerations are of paramount importance towards ensuring that water quantity and quality values are not significantly degraded as a result of alternative actions. Similar to alternative 1, gradients would need to be established to provide for sheet flow from these impermeable areas so that collection and point discharges from culverts do not directly enter the stream. In addition, grading design would need to establish retention basins to impede the rapid drainage of the parking areas during peak storm events.

The most critical actions that would require design considerations for water resource protection would be associated with the developments proposed for the east lot (forest). This parking facility is proposed to be developed near the Wolf Trap Run stream course. It would be imperative that drainage analysis be formulated to ensure no direct discharge into the stream as a result of flow conditions during storm events.

This alternative would likely increase peak flood levels and their associated discharge rates, which could have downstream implications for the predicted flood periodicity and extent.

Floodplains

Actions associated with the development of the east lot (forest) and its adjacent trail (northern alignment) would directly impact the floodplain of the Wolf Trap Run drainage. Approximately one-half of the parking area's extent would encroach within the predicted 100-year flood extent. In addition, the entire northern portion of the parking area's access/egress trail would be situated within the floodplain. It is anticipated that filling of the floodplain would be required to establish grades for these proposals. These two actions, collectively, would develop approximately 1.2 acres of the floodplain.

The National Park Service has identified certain classes of action that required modified approaches to achieve the objectives of the Executive Order 11988 ("Floodplain Management"), which assists the agency with meeting its environmental compliance issues while meeting the needs of park visitors and management actions. Both foot trails and small parking lots for use of the area are excepted actions from EO 11988. However, acting in the spirit of this executive order the National Park Service would provide for proper floodplain protection through the design of the parking area and the pedestrian trail. All development actions would incorporate methods for protecting life and minimizing storm damage. No critical actions (e.g., storage of irreplaceable objects or documents) would occur in the 500-year floodplain. Flood-proofing would be an important design criterion.

All other actions are proposed in areas outside the 100-year flood event. Impacts described under alternative 1 are applicable to all other development actions as proposed by this alternative.

Wetlands

As in alternative 1, all proposed actions would occur outside existing wetland areas as determined by site surveys and the National Wetland Inventory mapping program. Therefore, there would not be any direct or indirect impact on wetlands or their associated communities by action proposed in alternative 2.

Vegetation

The analysis completed for actions proposed by alternative 1 would be applicable to this alternative for like actions, which includes development of the accessible lot and trail improvements. However, impacts as described for actions associated with parking on the grass would be diminished, if not removed altogether, by the development of paved parking areas where that grass currently exists. Species impacted by this type conversion are nonnative and have been used to withstand the impact of traffic during most conditions.

The development of the east lot (forest) and a portion of the Gil's hill (forest) would take place in an area classified as least suitable for such actions based on vegetative analysis. In addition, proposals for trail improvements and development for the west and east lots would occur in this same constraints class. All of these developments would be located in the upper hardwood community. The actions proposed would type convert 7.49 acres from uplands hardwood community to a developed site. The upland hardwood community would be reduced by 20% from the existing spatial extent of the forest on parklands. This would reduce species abundance within the forest community at Wolf Trap Farm Park. Biodiversity is expected to remain unchanged within the park.

Most of the development actions proposed by alternative 2 would be confined to areas that are classified as parkland–open. Approximately 11.23 acres, or 45% of this vegetation class, would be lost within the park's boundary. However, proposed developments would be located in vegetative areas that are considered the most suitable for development purposes.

The visual characteristic of Wolf Trap Farm Park would be altered from a grassy country setting into a developed paved landscape. However, the development would allow for less intense resource management of these impacted areas. With the discontinuance of grass parking facilities, the recurring problem of turf management would be eliminated. This would also eliminate the need to use other grassy areas for parking during wet conditions when the soil is damp and the vegetation is subject to destruction by parking activities.

Wildlife

The short-term impacts on wildlife described in alternative 1 that would result during construction activities would also apply to alternative 2. Long-term impacts described for the construction of the accessible lot and trail alignments are also applicable. However, alternative 2 proposes additional development in the grass community, which would reduce the available grassland community by 11.23 acres.

The most critical impact on the wildlife resources of Wolf Trap Farm Park associated with alternative 2 would result from the development of the parking areas and trail improvements at the east lot (forest) and Gil's hill (forest). These proposed actions would take place in the upland hardwood forest habitat. This wildlife community supports a diversity of species and provides cover and refuge for the larger mammals that inhibit the vicinity. The conversion of the 7.49 acres for development purposes would further encroach on the remnants of this community type on a regional basis. The existing scarcity of large mammal sightings could become more restricted with the loss of habitat, combined with the fact that large performance events occur during the evening hours when these species are most active. Species could depend on the lands administered outside the park by the National Wildlife Federation for their habitat values.

The east lot (forest) location could impact the most sensitive habitat values because of its close proximity to the riparian habitat onsite. The trail alignment is within 40 feet of the Wolf Trap Run stream and the lot is sited approximately 60 feet away. Riparian communities are perhaps one of the most productive habitat types and species depend on them for all levels of habitat use. These proposals encroach parallel to the stream course and could serve to fragment the continuum of habitat for species present. The habitat value as a wildlife connector (corridor) between core habitat areas within the park and regional linkages could be impacted. The only buffer that could sustain the population in a similar habitat within this watershed is outside lands administered by the National Park Service along the stream channel.

Impacts on other species, such as small mammals and the avian population, would tend toward short-term rather than long-term disturbances. Due to these species mobility and smaller habitat requirements, a displacement of these species from the developed site would most likely be expected. Species composition would not change.

Threatened and Endangered Species

As with alternative 1, based on the determinations of the U.S. Fish and Wildlife Service, implementation of alternative 2 would have no effect on either endangered

or threatened species or the critical habitat of such species within Wolf Trap Farm Park.

IMPACTS ON CULTURAL RESOURCES

Structures

Under this alternative, the appearance, structural components, and use of the buildings would not be affected. The immediate setting around the plaza area would be slightly altered to accommodate additional parking and pedestrian corridors. However, none of the farm structures would be affected.

Setting

Continuation of grass parking in previous use areas would detract from the visitor experience. The expansion of parking into additional areas of the park and the visual impact created by the parked cars would have a greater negative long-term impact on the informal, country setting of the park than what is currently experienced under alternative 1.

Archeological Resources

As in alternative 1, there are no known archeological resources that would be disturbed by any of the proposed development actions. However, surveys must be conducted before construction activities occur. If any archeological resources or potential sites were found, these sites would be recorded, and mitigation measures would be developed in consultation with the Virginia state historic preservation officer and the Advisory Council on Historic Preservation, in accordance with 36 CFR 800.11. Impacts would be minimized through monitoring during the construction phase.

IMPACTS ON TRANSPORTATION

Under this alternative, long-term positive impacts can be expected on traffic circulation in the immediate area of the park before and after performances, as most vehicles would be accommodated within the boundaries of the park. Patrons would not have to park in adjacent neighborhoods during sold-out performances, thus greatly reducing traffic and congestion in those areas. Pedestrian/vehicular conflicts would be greatly reduced because patrons would not be walking on Trap or Towlston Roads before and after sold-out performances.

The operation of a shuttle service would require funding to operate the system as well as additional staff time to manage traffic and parking operations. The vehicular exit process at the end of sold-out performances is expected to take a longer period of time than in alternative 1 due to increased parking east of Trap Road.

IMPACTS ON PATRON EXPERIENCE

Patron frustration due to the inadequacy of available parking would be alleviated in this alternative. However, the additional pavement in the park and the density of cars onsite would have a moderate impact on the country character of the experience. This would be a pronounced long-term negative impact when the park is not hosting a performance and the parking lots are empty.

IMPACTS ON SOCIOECONOMIC ENVIRONMENT

Under this alternative, the neighborhoods immediately surrounding the park should expect long-term positive benefits as most vehicles would be accommodated within the boundaries of the park. However, regular periods of traffic congestion associated with performances would continue seasonally over the long term.

CUMULATIVE IMPACTS

The cumulative impacts described for alternative 1 would also be applicable to the development actions proposed for the accessible lot and some of the trail alignments proposed in alternative 2.

An increase in onsite parking would result from implementation of this alternative. A total of 176 additional spaces would be added through enlargement and paving of existing areas and development of additional parking lots. This would not have a cumulative impact on the region's air quality as it redistributes the parking rather than creating more within the vicinity of the park.

New parking areas would commit an additional 20 acres of parkland to a developed area. This would continue to decrease the rural characteristics within the immediate vicinity, which is currently extensively developed outside the park boundary.

The increases in impermeable surfaces would incrementally increase the surface water discharges from developed areas into Wolf Trap Run. This would further increase peak discharge and quantity rates. Water quality could also be incrementally impacted by inputs of contaminated surface water into the stream course during peak storm events. This could have an effect on downstream receivers of these surface flows. In addition, peak flood levels and periodicity could increase as a result of increased stormwater runoff from impermeable surfaces.

The region's hardwood forest community would be reduced by 7.49 acres associated with parking lot development at the east lot (forest) and Gil's hill (forest). In addition, another 11.23 acres of open space parkland would be committed for development purposes. This reduction would be in a region where extensive urban development adjacent to the park has taken place and would continue to take place.

The incremental loss of the hardwood habitat would constitute further degradation and encroachment by development on core habitat areas on a regional basis. Continued loss of this habitat type, especially adjacent to riparian areas such as the parking proposed in alternative 2, could disrupt the existing network of wildlife connectors and core habitat.

Cumulative impacts on cultural resources would be the same as in alternative 1. However, the expansion of parking into additional areas of the park would have a long-term negative visual impact on the site.

UNAVOIDABLE ADVERSE IMPACTS, RELATIONSHIP BETWEEN SHORT-TERM USES AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY, AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Actions proposed by this alternative would irreversibly and irretrievably commit

approximately 20 additional acres of parkland for development purposes. This specifically includes impacts on the hardwood forest community, floodplain, and riparian habitat. These lands would be converted from productive contributors to the natural system into a developed site for greater patron convenience. Conversely, there would be less dependence on the private vehicle to access the park through the employment of mass transportation and organized offsite parking opportunities. This would improve localized traffic flow during peak events and reduce congestion within the vicinity. The use of mass transit would be strongly supported for event travel. Safer conditions for park visitors away from and out of the flow of traffic would result.

There would be no irreversible or irretrievable commitment of resources to the cultural related resources under alternative 2.

The potential of remote parking areas and shuttle buses would alleviate some of the parking onsite and could possibly provide more of a visual improvement to the setting of the park over the long term.

IMPACTS OF ALTERNATIVE 3

Alternative 3 provides onsite parking and improvements to serve patron needs within the park during major performances, reduces impacts on the surrounding neighborhoods by eliminating patron parking offsite, removes existing impacts from most vegetated sites, and allows for the restoration of disturbed areas to a more natural condition. In order to accomplish these objectives, a redistribution of parking is proposed. Onsite parking would be increased to accommodate all patrons during the most popular performances at Wolf Trap Farm Park.

This alternative proposes to increase the number of parking spaces available to concert patrons within the boundary of Wolf Trap Farm Park. Alternative 2 presented information pertaining to the limited parking on site during major performances that is also applicable to alternative 3. There is a parking deficit of between 477 and 523 cars during peak events. Current parking levels are at a maximum of 2,752 spaces.

Alternative 3 seeks to address this parking need by providing an additional 689 parking units within the park boundary. It is desirable to accommodate the entire parking demand within the park and eliminate the practice of parking vehicles on the park's grass areas, sidewalks, and within the surrounding neighborhoods. This alternative proposes the construction of a 280,000-square-foot parking structure within the park boundary to accomplish these objectives. About 1,250 onsite spaces would be eliminated, and where feasible these areas would be restored to a more natural condition.

IMPACTS ON NATURAL RESOURCES

Air Quality

The short-term impacts on air quality described in alternative 1 would be applicable to those development actions proposed in alternative 3. Section 176 of the Clean Air Act requires any action on the part of a federal agency in a nonattainment area to conform to the state's efforts to attain and maintain these standards. Wolf Trap Farm Park is situated in an area of nonattainment with the NAAQS for carbon monoxide and ozone. In compliance with this act, the National Park Service would work with the Commonwealth of Virginia and Fairfax County to conform with their air quality goals and assist these regulatory agencies toward attaining and maintaining these objectives. Specifically, the issue of increased parking onsite, even though constituting a redistribution of parking within the vicinity of Wolf Trap Farm Park requires efforts by the National Park Service to mitigate any increased parking onsite. This would ensure that this agency's efforts are in conformance with the attainment plans for the region and that actions proposed herein do not contribute to incremental degradation of the air quality or the air quality related values for the park or the surrounding vicinity.

Although an increase of 689 parking spaces is proposed by this alternative, it does not increase the demand or the existing needs for vehicle parking during major events within the vicinity of the park. This is applicable towards analyzing the current air quality conditions and related values immediately adjacent to Wolf Trap Farm

Park and within the region as a whole. The proposal seeks to redistribute the parking need into a centralized facility located on park property to meet patron needs and to alleviate the parking situation in the local neighborhoods surrounding the park. It would also provide for a safer environment for the patrons as access to the park from offsite parking is difficult due to the lack of pedestrian walkways.

Through the employment of a centralized parking facility, onsite air quality during performances could be slightly improved above ambient conditions because traffic circulation would be improved. Traffic congestion and long waits to access the park would be greatly diminished. Currently, patrons seeking parking places are turned away after the parking capacity is reached. However, in order to ascertain this parking status they wait in congested conditions with engines idling for long periods. Their alternative, when the parking has reached its maximum levels, is to exit the park and seek parking within the surrounding neighborhoods. This contributes to even longer operating periods for combustible engines and congestion within the surrounding communities. An onsite facility would provide for enhanced traffic flow into the park resulting in less congestion, shorter idling times, and eliminate the pollution associated with patron exit and attempts to seek alternative parking in the surrounding vicinity. for their vehicles.

Soils

Impacts on the soils would be the same as those described in alternative 1 for the development of the accessible lot and trail modifications.

The proposed elimination of 1,249 vehicular parking spaces on the grass community and in some of the existing paved parking sites would improve the soil conditions within Wolf Trap Farm Park. Approximately 10.06 acres of impacted soils would be returned to a more natural condition. This would promote the development of a nutrient base capable of supporting system functions.

The continual problem of soil impacts from compaction by vehicles traveling and parking on soils with a grass cover would be eliminated. In addition, the soil erosion problem associated with impacts during storm events by tire tracking would also be eliminated. This would improve stabilizing and maintaining the soils base for the Glenelg, Glenville, and Manor soil series within the park.

Water Resources

Impacts on water resources described in alternative 1 would also be applicable to proposed actions in this alternative for the development of the accessible parking lot and trail improvements. Other actions proposed by alternative 3 would provide for better water management practices onsite with no or very little additional impacts on water resources.

The proposed parking structure would be located in the west parking area. Impacts on water resources as described in alternative 2 for the development of a paved parking lot are applicable to this alternative as well.

Improvements in the water resources would result from the discontinuation of parking of cars in existing grassy areas, shoulders, and the removal of some existing paved parking lots. Alternative 3 specifies that areas to be closed to parking include the Gil's hill area,

the dust bowl, the dimple area, and some trails. This would return approximately 10.06 acres to a more natural condition and remove all impermeable surfaces used for parking that currently exist at these sites. In the grassy areas currently used for parking, elimination of this practice would remove the compaction of soils caused by offroad travel. The net gain would be greater permeable surfaces, which would allow for ground- water recharge. Stormwaters would have the opportunity to percolate into the ground rather than discharging as a sheet flow directly into the Wolf Trap Run stream. The infiltration of surface waters would decrease, slightly, the stream discharge and quantity rates and assist with attaining an improved flow regime in a heavily impacted urbanized watershed.

Water quality would also improve through the infiltration process.

The soils would not be heavily impacted during major events, and during wet times the serious problem of rutting of the soils by vehicle tracking would be eliminated. This, combined with the reestablished vegetation, would cause a decrease in the potential sedimentation and turbidity problems caused by erosion in these areas.

Floodplains

The impacts on floodplains would be the same as those described for alternative 1.

Wetlands

The impacts on wetlands would be the same as those described for alternative 1.

Vegetation

The impacts on vegetative communities as described in alternative 1 for the development of the accessible lot and some of the trail modifications would be the same for alternative 3.

Alternative 3 proposes to eliminate parking in areas where the parkland–open vegetation community exists. This would allow the park to reestablish and maintain a grass landscape in these areas without further impacts from vehicle parking. The total restoration effort would allow 10.06 acres of parkland–open vegetation community to be returned to the parkscape. This would provide for a more visual and resource based experience for those visitors and patrons who visit the park.

Wildlife

The impacts on the wildlife population at Wolf Trap Farm Park would be the same as those described in alternative 1 for the development of the accessible parking area and trail improvements. With the removal of parking from the parkland – open vegetation class and the restoration of approximately 10.06 acres, there would be greater habitat available for those species that prefer this type of condition. This would include the small mammal population and avian species. In addition, those species that prefer interfacing with habitat changes along an edge transition would have greater opportunity to use the area with a buffer between that edge and areas of human development/interaction. Species abundance could increase due to the increase in open area and net decrease in the developed areas within the park. Biodiversity would remain comparatively the same as existing conditions.

Threatened and Endangered Species

As with alternative 1, based on the determinations of the U.S. Fish and Wildlife Service, this alternative would have no effect on either endangered or threatened species or the critical habitat of such species within Wolf Trap Farm Park.

IMPACTS ON CULTURAL RESOURCES

Structures

As in alternatives 1 and 2, the appearance of the structures as they currently exist would not be affected with the construction of a parking structure. Under this alternative, the use of the structures would remain the same. The potential redesign of pedestrian use and parking layout might affect the setting more than under alternatives 1 and 2.

Setting

The parking facility would create more of a visual impact than the existing west parking lot; however, it would help consolidate parking away from the farm and performance area.

Archeological Resources

As in alternatives 1 and 2, it is not anticipated that any archeological resources would be disturbed by any of the proposed development actions. However, before construction activities occur, archeological surveys would be conducted to determine if any archeological resources or sites exist. If any resources are found, these sites would be recorded, and mitigation measures would be developed in consultation with the Virginia state historic preservation officer and the Advisory Council on Historic Preservation, in accordance with 36 CFR 800.11. Impacts would be minimized through monitoring during the construction phase.

IMPACTS ON TRANSPORTATION

Under this alternative, long-term positive impacts can be expected to occur to the traffic circulation in the immediate area of the park before and after performances, as most vehicles would be accommodated within the boundaries of the park. This would eliminate patron parking in adjacent neighborhoods during sold-out performances, thus greatly reducing traffic noise and congestion during those times.

Pedestrian/vehicular conflicts would be greatly reduced onsite because of the elimination of dispersed parking on grass areas and along Trap and Towlston Roads. Staff time would be reduced to manage parking since over 80% of the patrons would use the parking structure during sold-out performances.

IMPACTS ON PATRON EXPERIENCE

The quality and safety of the patron experience would be greatly enhanced by separating the vehicles from the pedestrians and creating more picnic areas. Parking frustrations would be eliminated and the country character of the park east of Trap Road would be maintained.

IMPACTS ON SOCIOECONOMIC ENVIRONMENT

Under this alternative, the neighborhoods immediately surrounding the park should expect long-term positive benefits as most vehicles would be accommodated within the boundaries of the park. However, the visual impacts of a parking structure may constitute a further diminution of the country character of Trap Road in the vicinity of the Dulles Toll Road.

CUMULATIVE IMPACTS

Those impacts described for alternative 1 would be also applicable to this alternative because both propose the development of an accessible lot and minor trail alignment improvements.

This alternative proposes an additional 689 parking spaces onsite. The increase is necessary to accommodate all patrons on parklands, redistribute parking to a centralized parking facility, eliminate parking in adjacent communities, and improve visitor safety. This would not cumulatively impact air quality values as there would not be a net increase in parking for major performances at Filene Center.

Approximately 10.06 acres of parkland committed to parking during major events within Wolf Trap Farm Park would be returned to a grasslands community. This would enhance the visual characteristics of the park and provide greater undisturbed open space within a region that is extensively developed. This would also improve groundwater recharge within the area allowing surface flows to percolate into the system rather than discharge directly into the stream channel. This would assist with improving the water discharge and quantity rates and reduce flood peaks and periodicity. Water quality would also improve through greater infiltration of surface waters into the ground and the overall reduction in exposed hard surface parking areas onsite. This would improve downstream water quality and quantity conditions.

The cumulative impacts on cultural resources under alternative 3 would be the same as alternative 1.

UNAVOIDABLE ADVERSE IMPACTS, RELATIONSHIP BETWEEN SHORT-TERM USES AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY, AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The analysis presented in alternative 1 would be applicable to alternative 3 for the development of the accessible lot and minor trail alignment and improvements.

The actions proposed in alternative 3 would provide a long-term solution to the parking needs of patrons at Wolf Trap Farm Park. The parking facility would eliminate the need for offsite parking thereby improving local traffic circulation, reducing traffic congestion on side streets, and concentrate all patrons and their vehicles onsite where the performance would be held. It would improve visitor safety through the improvements to the pedestrian circulation patterns and eliminate the offsite safety problems associated with the lack of sidewalks and traffic congestion. There would be a long-term visual impact of the parking structure.

ALTERNATIVE 4 (PROPOSED ACTION)

Alternative 4 seeks to provide adequate parking within the park for a sold-out performance without adding new paved areas or structures to the park. This would be accomplished by expanding grass parking into areas currently covered by hardwood forest. Pedestrian routes would be improved as the box office plaza buildings would be replaced with a new structure consolidating patron services.

Similar to alternative 3, this alternative would increase the number of onsite parking spaces within Wolf Trap Farm Park. There would be between 450 and 580 new spaces added for patron parking. Alternative 2 presented information pertaining to the limited parking onsite during major performances, which is also applicable to this alternative. The additional parking provided in this alternative would contain patron parking within the park boundary and should eliminate the need for offsite parking within the immediate neighborhoods. Current parking levels are at a maximum of 2,752 spaces, and this plan provides for up to 3,330 parking spaces for patrons and employees. Although exact calculations for capacity on grass areas are difficult to do, experience at Wolf Trap Farm Park indicates this added capacity would more than adequately accommodate patrons arriving by private vehicle.

As with alternative 3, it is desirable to accommodate the entire parking demand within the park and eliminate the practice of parking vehicles in the surrounding neighborhoods. The offsite parking situation in alternative 1 increases traffic congestion within these neighborhoods. It also presents safety concerns to those patrons seeking offsite access to the park on foot using heavily congested side streets.

IMPACTS ON NATURAL RESOURCES

Air Quality

The short-term air quality impacts described in alternative 1 are applicable to development actions proposed in alternative 4.

In conformance with Section 176 of the Clean Air Act and the need to attain and maintain air quality standards, the mitigation measures described in alternative 2 would also apply to this alternative. Wolf Trap Farm Park is currently an area of nonattainment with the NAAQS for carbon monoxide and ozone. However, this alternative differs from alternative 2 in that 1,249 parking spaces would not be eliminated from the grass areas (as a result of parking structure construction) and alternative offsite satellite parking locations would not be a part of this proposal. As with alternative 2, the establishment of a Metro rail stop would be supported by the park to provide a means of transporting patrons using mass transit and thereby reducing the necessity of private vehicle use.

Soils

Impacts associated with the development of an accessible parking lot and its trail linkages would be similar to those described by alternative 1.

Implementation of this alternative would disturb approximately 14 acres of soils

onsite by grading and filling activities required for proper slope establishment within Wolf Trap Farm Park. These actions would occur in areas where development is present, in areas used for grass parking, and in nondisturbed sites. It is estimated that approximately 3 acres of new disturbance (within the overall 14 acre total) is proposed in the forest community to the east of Gil's hill, which currently exists as a natural area. Other large areas to be graded within the 14 acre total include approximately 2.1 acres in the lower portion of Gil's hill where it is fairly steep and slopes are not suitable for parking purposes. In addition, grading would be required to establish lawn area seating on a 6% slope near the Filene Center.

Soils to be impacted are in the Glenelg, Manor, Glenville, and Rocky Land soil series. These soils range from poor (Glenville) to good (Glenelg, Manor) drainage characteristics. The Glenville and the Rocky Land soils are considered poor as suitable areas for road development while the Glenelg and Manor are classified with fair drainage characteristics. Except for the rocky land (considered variable), all of these soils have low shrink-swell potential.

Site grading would occur in the Glenelg (undulating, rolling, and hilly), Manor (rolling and hilly), Glenville, and the Rocky Land, steep soil types. These soils are considered most suitable for development purposes. However, due to slope conditions some of these areas are considered moderately to least suitable for these same actions. Areas where steep slopes exist and which would be graded to provide for appropriate conditions suitable for park purposes (i.e., parking areas) include a portion of the present forest area to the east of Gil's hill and the area just to the north of the dimple. The remaining areas are considered moderately suitable for development actions (Gil's hill and the dust bowl). Actions proposed for the west lot and the east lot would occur in the most suitable areas.

Fill activities would be required for grade establishment to ensure safe conditions for parked vehicles. Major filling would need to be undertaken at the dimple area to remove its depression and establish a grade conducive to the slope of the land adjacent to this feature. This would enable the parking lot proposed for this area, including accessible parking along the eastern perimeter, to be established. Most of the materials to be used for filling actions would come from the site and would be as a result of grading activities in the other areas of the park. However, it is anticipated that additional fill would be needed to completely bring the dimple area to grade and these materials would be obtained from local sources external to the park. Testing of all soils to be brought on site would be conducted to ensure that hazardous substances were not present.

The establishment of new walkways, Gil's hill parking access route, and the elimination of existing paved areas would approximate current impermeable areas within the park. It is estimated that 0.39 acre would be paved for walkway, vehicle, and cart access. Conversely, removal of existing paved surfaces would return approximately 0.48 acre to more natural soil conditions.

Soils would continue to be impacted by vehicle compaction caused by off-road travel and parking in the grassy areas. This could slightly reduce surface flow infiltration capacity in these areas during storm events. This would be partially mitigated through the employment of stabilized turn or grass pavers at maximum vehicle access points

such as parking lot entry/exit locations and where bus parking would be permitted. In addition, when the soils were in a wet condition subsequent to major storm events, rutting by vehicular tracking could occur. Proper maintenance and site avoidance of problem areas could mitigate some of these impacts.

Water Resources

Actions proposed in this alternative for trail improvements would be similar to those described for alternative 1.

Design of parking areas and the runoff potential would be similar to those discussed in alternative 2.

Although this alternative proposes larger parking areas as compared with the alternative 2 proposal, none of these expanded nor existing lots would be paved as was the case with alternative 2. This would provide for a slightly permeable soil condition, which would allow for infiltration of surface waters, especially during low magnitude storm events. During peak storms, runoff from these parking areas could be partially mitigated through proper design and grade contouring. However, depending on the storm intensity and duration, there could be some downstream consequences from increased peak flood levels and their associated discharge rates if the retention basins did not alleviate the potential for surface discharge into the stream course. Low-lying areas west of Trap Road within the park would continue to be flooded during peak storm events as a result of the impacts associated with these proposed actions in combination with the upstream development impacts that have affected the park's water resources.

Similar to alternative 2, the most sensitive area that has the potential for impact is near the eastern edge of the northern portion of Gil's hill parking. This is in an area that is currently forested and near the stream channel and mostly below the confluence of Wolf Trap Run and Difficult Run. The stream flow produced by the merging of these two streams combined with any additional flow associated from the parking area could elevate discharge rates and stream flow quantities.

It is expected that the impermeable surface provided by the paved vehicular access route to the Gil's hill parking area would contribute to the overland sheet flow from the area. These quantities would be included in the design considerations for onsite retention and grading plans. It is estimated that 0.23 acre would be converted into an impermeable area as a result of the development of the proposed access road associated with this parking area.

A slight increase in surface water turbidity and sedimentation could result from soil erosion in exposed areas of the parking areas during and immediately after major storm events. Proper vegetation establishment/maintenance and site avoidance by vehicles at these locations during extremely moist soil conditions would partially reduce potential water quality impacts. In addition, retention basins could establish temporary base levels, which would provide assistance to the depositional process thereby reducing turbidity levels of stormwaters that would enter the stream flow.

Grading, filling, and parking lot establishment could have potential for short-term water quality impacts. This includes increased sediments and turbidity levels during parking lot development and grading

activities. This impact would be mitigated through the use of appropriate erosion control techniques such as silt fences and sediment traps. Actions proposed would comply with all applicable state and federal requirements and permits to ensure that all safeguards are taken to eliminate the potential for impacts on the surface waters.

Floodplains

The actions proposed by this alternative are outside the floodplain and would, therefore, have no impact on the associated floodplain values of Wolf Trap Farm Park. Floodplain delineations were determined as discussed in alternative 1.

Wetlands

There would be no impacts on wetlands or wetland-related values as a result of proposed actions associated with this alternative.

Vegetation

This alternative proposes to expand the Gil's hill parking area to the east into the existing forest community. This development action would occur in an area classified as least suitable for such actions based on vegetative analysis. This would be similar to those impacts described in alternative 3. However, the magnitude of these impacts would be greater because of the more extensive development proposed. Approximately 3 acres of disturbance would occur within the forest community as a result of alternative implementation. This would reduce the upland hardwood forest community by approximately 2% from its current condition. That impact would leave approximately 34.15 acres of upland hardwoods in existence on parklands at Wolf Trap Farm Park and could reduce species abundance. Biodiversity is expected to remain unchanged within the park.

Vegetation composition would also change as a result of alternative implementation. The forest community to be impacted would be replaced by an additional 3 acres of open grassland vegetation community. Areas proposed for parking where grading would occur would be planted with grass capable of withstanding vehicular traffic/parking. Due to the nature of these grass species this would require that nonnative grass species best suited for intensive uses, such as vehicular travel, would be planted onsite.

Wildlife

The impacts on the wildlife population at Wolf Trap Farm Park would be the same as those described in alternative 1 for the development of the accessible parking area and trail improvements.

Similar to alternative 2, the most critical impact on wildlife resources would be associated with the proposed development in the upland hardwood forest habitat type. Impacts on wildlife species would be similar to those described in alternative 2. However, these impacts could affect a greater number of species due to the type conversion of the forest community to an open parkland condition.

The resident population of pileated woodpeckers could be impacted by actions proposed. With the loss of upland hardwoods there could be species displacement of those individuals that reside in that area. If the adjacent habitat has been claimed by other pileated woodpeckers those displaced

species would most likely have to search for suitable habitat outside of the park. If all suitable habitat has been claimed by other woodpeckers, then those affected individuals could be lost as a result of habitat conversion.

Similar to alternative 2, this action would be close to the riparian community and impacts would be similar as those described by that alternative. In addition, small mammal impacts would be similar to those described in alternative 2.

Threatened and Endangered Species

As stated in alternative 1, based on the determinations of the U.S. Fish and Wildlife Service, this alternative would have no effect on either endangered or threatened species or the critical habitat of such species within Wolf Trap Farm Park.

IMPACTS ON CULTURAL RESOURCES

Structures

The appearance of the structures as they currently exist would not be affected by the proposed parking practices. Furthermore, the use and interpretation of the structures would remain the same under this alternative.

The improvements and redesign of the plaza/theater area would not affect the use or appearance of the farm structures, which would remain as they currently exist. However, the ranger station (guest cabin) could be affected, which might be relocated or removed depending on the final design of the plaza area. The immediate setting around the plaza area would be altered due to the construction of the new patron facilities and ticketing building. This new structure would include ticketing, concessions, restrooms, police and first aid stations, as well as ranger facilities, administration and usher offices, and a press area. The containment of the facilities in one centralized building would allow for a more efficient plaza area since the existing, scattered buildings on the plaza that currently service these functions would be removed.

Setting

With the expansion of parking into previously undisturbed areas of the park, the visual impact created by a larger expanse of parked cars would have a greater negative impact on the country setting of the park than what currently exists. Furthermore, grading some of the areas, especially Gil's hill, could negatively affect the rolling-hill atmosphere of the site. The reconfiguration of pedestrian areas, as well as a new theater area entrance, would enhance the natural and manmade features of the site.

Archeological Resources

As in the other alternatives, it is not known if any archeological resources would be affected under this alternative. An archeological survey would have to be conducted before any construction activities occur. If any of the proposed construction activities yield archeological resources or potential sites, these sites would be recorded, and mitigation measures would be developed in consultation with the Virginia state historic preservation officer and the Advisory Council on Historic Preservation, in accordance with 36 CFR 800.11. Impacts would be minimized through monitoring during the construction phase.

IMPACTS ON TRANSPORTATION

As in alternatives 2 and 3, long-term positive impacts can be expected on traffic circulation in the immediate area of the park before and after performances, as all or most of the vehicles would be parked within the park. Patron parking in neighborhoods would be eliminated, greatly reducing traffic noise and congestion during sold-out performances.

Pedestrian safety would be enhanced because patrons would not have to walk on the shoulders of Trap and Towlston Roads before and after sold-out performances. Pedestrian safety would also be enhanced from continuation of lighted walkways separating vehicular traffic and pedestrians.

The vehicular exit process at the end of sold-out performances would result in a longer time period to empty the parking lots east of Trap Road than in alternatives 1 and 2.

IMPACTS ON PATRON EXPERIENCE

Patron frustrations in finding convenient, safe parking would be alleviated in this alternative, resulting in long-term positive benefits to the 1,000 patrons who currently are turned away during sold-out performances. The removal of 3 acres of forested area and the increase in the density of cars would moderately diminish the quality of the country character.

IMPACTS ON SOCIOECONOMIC ENVIRONMENT

The neighborhoods immediately surrounding the park should expect long-term positive benefits as most vehicles would be accommodated within the boundaries of the park. However, regular periods of traffic congestion associated with performances would continue seasonally over the long term.

CUMULATIVE IMPACTS

The cumulative impacts described for alternative 1 would also be applicable to the development actions proposed for the accessible lot and some of the trail alignments proposed for alternative 2.

As with previous alternatives there would be an increase in on-site parking at Wolf Trap Farm Park. A maximum of 587 parking spaces would be added. This would reduce the rural characteristics of the park and tend to provide visually a more developed environment. However, most of the developed sites would be related to parking and they would be planted with grass to maintain a parkscape within the context of the performance complex, improving the appearance to the nonperformance visitor over views that would result from alternative 2.

The loss of 3 acres of natural forest area would contribute to this vegetation community's loss within a regional context as a result of development within the vicinity. This would constitute further degradation and encroachment by development on core habitat areas within the region. Continued loss of this habitat type, especially adjacent to riparian communities such as the parking proposed by this alternative could disrupt the existing network of wildlife connectors and core habitat areas.

Runoff from the hardened parking areas could result in increase peak flows and

discharge rates for Wolf Trap Run creek. This could be a slight incremental increase in these quantities as a result of park development and those associated with external land development activities. This could possibly impact downstream locations. This impact could also increase peak flood levels and periodicity as a result of increased storm water runoff from impermeable surfaces. Mitigation measures such as onsite monitoring of soil conditions, planting of grass, the use of grass pavers, and retainment design could reduce if not eliminate this potential.

There could be impacts on archeological resources in areas of any new disturbance. Archeological surveys would be required before any construction actions proposed under this alternative occur. Furthermore, the removal of forested area would create a loss of visual buffer for parking areas.

UNAVOIDABLE ADVERSE IMPACTS, RELATIONSHIP BETWEEN SHORT-TERM USES AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY, AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Actions proposed by this alternative would irreversibly and irretrievable commit approximately 3 additional acres of parkland for development purposes. This specifically includes impacts on the hardwood forest community and riparian habitat. These lands would be converted from productive contributors to the natural system into a developed site providing for patron needs. This action is considered an irreversible and irretrievable commitment of these resources in order to provide for an improved and safer patron experience at the park. The linear parking areas would provide for the long-term needs of the mobility impaired individuals to gain improved access to the Filene Center during events. In addition, the widening of the trails would provide for the long-term pedestrian access to the Filene Center with improved pathways providing greater protection and safety from the existing routes currently used. Safer conditions for park visitors away from and out of the flow of traffic would also result from alternative implementation.

The impacts on cultural resources would be the same as in alternative 1. However, if there are archeological resources in the forested area to be cleared, this could be a adverse impact and thus an irreversible and irretrievable commitment of these resources.

COMPLIANCE WITH FEDERAL AND COMMONWEALTH LEGISLATION, POLICIES, AND REGULATIONS

This environmental impact statement provides disclosure of the planning and decision-making process and potential environmental consequences of the proposed alternatives. This environmental impact statement was prepared based on the need to adequately analyze and understand the consequences of the impacts related to the proposed park developments and to involve the public/other agencies in the decision-making process.

NATIONAL ENVIRONMENTAL POLICY ACT

The environmental assessment was prepared in accordance with the Council on Environmental Quality regulations pertaining to the implementation of the procedural provisions of the National Environmental Policy Act (40 CFR 1500 et seq.) and in part 516 of the U.S. Department of the Interior's *Departmental Manual* (516 DM). Appropriate federal, state, and local agencies have been or will be contacted for input, review, and permitting as part of this planning and assessment effort and in coordination with other legislative and executive requirements. Consultation will be sought with other agencies in order to address specific issues and concerns pertaining to threatened and endangered species.

FLOODPLAINS AND WETLANDS MANAGEMENT

Executive Orders 11988 ("Floodplain Management") and 11990 ("Protection of Wetlands") directed federal agencies to avoid development in floodplains and wetlands whenever there is a practicable alternative and to avoid, to the extent possible, adverse impacts associated with the occupancy or modification of floodplains and wetlands.

The National Park Service has identified certain classes of action that required modified approaches to achieve the objectives of the EO 11988, which assists the agency with meeting its environmental compliance issues while meeting the needs for park visitors and management actions. Both foot trails and small parking lots for use of the area are excepted actions from this executive order. However, acting in the spirit of this EO 11988 the National Park Service would provide for proper floodplain protection through the design of the parking area and the pedestrian trail. All development actions would incorporate methods for protecting life and minimizing storm damage. No critical actions (e.g., storage of irreplaceable objects or documents) would occur in the 500-year floodplain. Flood-proofing would be an important design criterion.

None of the proposed actions in any of the formulated alternatives would impact wetlands and are therefore consistent with EO 11990.

ENDANGERED AND THREATENED SPECIES AND CRITICAL HABITAT

The U.S. Fish and Wildlife Service has advised the National Park Service that no federally listed or proposed endangered or threatened species live in or use the project

area, except for occasional transients under USFWS jurisdiction. Based on USFWS determinations the National Park Service has determined that the proposed action will have no effect on threatened or endangered species or critical habitat of these species within the proposed project area. Therefore, no biological assessment or further section 7 consultation under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq) is required.

NATIONAL HISTORIC PRESERVATION ACT

In the 1970s, survey and evaluation of the cultural resources was conducted at Wolf Trap Farm Park. A National Register of Historic Places evaluation was conducted on the farmhouse in 1975. It was determined that a loss of integrity caused ineligibility for listing on the national register. In 1978, a partial inventory and evaluation of potential archeological sites was conducted, with negative findings.

In 1996 a determination of eligibility for the national register was prepared for the remaining farm and park structures at Wolf Trap. The Virginia state historic preservation officer has concurred that the structures are not eligible for listing on the national register. However, the state historic preservation office has requested that additional information be gathered for potential archeological resources. Before any construction activities, additional research and survey work for archeological resources would need to occur to determine if any resources exist and if they have significance to the history of the site.

Throughout the planning process, the Virginia state historic preservation officer will be involved through coordination with the park. Cultural resource compliance will be completed under the provisions of the 1990 programmatic agreement, in coordination with the Virginia state historic preservation officer and the Advisory Council on Historic Preservation. The general management plan specifies any further cultural resource surveys for implementation of the alternatives.

The National Park Service would document any proposed action prior to its implementation. This would assess any project affects and outline actions proposed to mitigate those effects. Specific actions requiring ground disturbance might require monitoring. Prior to any ground disturbing activities, a professional archeologist would determine the need for an archeological survey and evaluation. Such studies would be completed before any construction activities and the site would continued to monitored during construction to ensure that archeological resources would not be disturbed. The National Park Service would document any proposed action prior to its implementation. This would assess any project affects and outline actions proposed to mitigate those effects.

U.S. ARMY CORPS OF ENGINEERS

The U.S. Army Corps of Engineers has been regulating activities in the nation's waters since 1890. Until the 1960s the primary purpose of the regulatory program was to protect navigation. Since then, as a result of laws and court decisions, the program has been broadened so that it now considers the full public interest for both the protection and use of water resources.

Regulatory authority and responsibilities of the Corps of Engineers includes section 404 of the Clean Water Act (33 USC 1344).

This includes the regulation of the discharge of dredged material into waters of the United States including both navigable waters and adjacent wetlands. In addition, section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) is regulated by the Corps of Engineers for activities in or affecting navigable waters.

None of the actions proposed will impact waters that are considered waters of the United States. All of the proposed actions are in compliance with the Clean Water Act and is not subject to U.S. Army Corps of Engineers review under the 404 regulatory program.

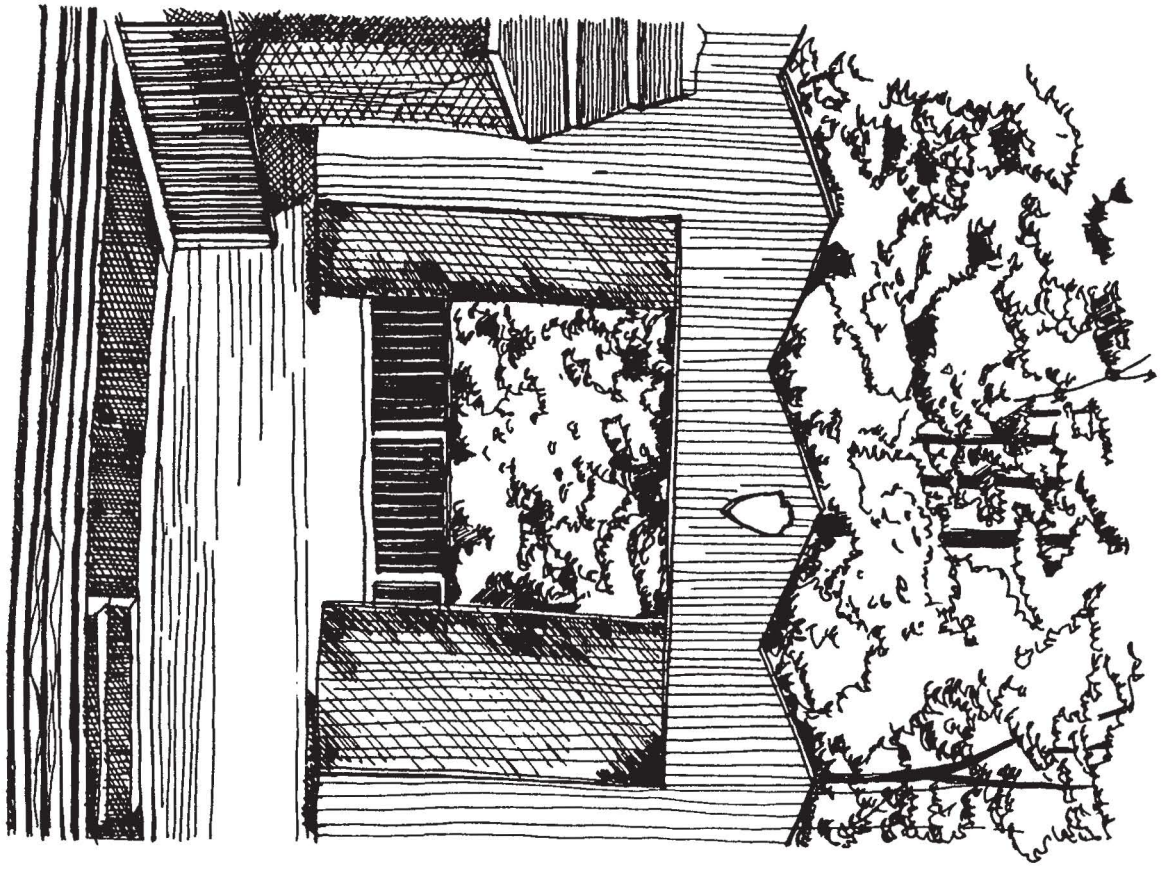
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (CF. 402, CLEAN WATER ACT, 1977)

A provision in the Federal Water Pollution Control Act (Clean Water Act), which establishes effluent limitations for point sources of pollution, requires a permit for point source discharge of pollutants (through the National Pollution Discharge Elimination System).

Actions proposed will be analyzed to determine if a point source of discharge would be associated with any of the proposed actions for the preferred alternative. If the actions are within the NPDES criteria and guidelines, then appropriate permits will be obtained.

COMMONWEALTH OF VIRGINIA PERMITTING

A permit application(s) will be completed for those activities that require evaluation.



CONSULTATION AND COORDINATION

PUBLIC AND WOLF TRAP FOUNDATION INVOLVEMENT

PUBLIC INVOLVEMENT

Three meetings were held to obtain public input on the scope of this project. They were held at the Department of the Interior building in Washington, D.C. on November 29, 1993, and at the Filene Center on November 30, 1993, in the afternoon and in the evening.

A newsletter to introduce draft alternatives was sent to over 400 homes and agencies in June 1995.

Follow-up workshops were held with the public to review draft alternatives on August 21 and 22, 1995. Both of these meetings were held at the Barns at Wolf Trap in cooperation with the Wolf Trap Foundation.

WOLF TRAP FOUNDATION INVOLVEMENT

The National Park Service worked closely with the Wolf Trap Foundation Executive Board, Board of Directors, and the foundation staff in the development of this plan to ensure that the needs and plans of the foundation have been considered in this planning effort. The planning team was fortunate to have had the opportunity to meet Mrs. Shouse in 1994 and hear her recollections of Wolf Trap's past and her dreams for its future.

The Wolf Trap Foundation Executive Board met with team members twice on the following dates: September 23, 1993, and January 23, 1995.

Additionally, members of the team met with the full foundation board to brief them on plan progress on the following dates: October 18, 1993; February 23, 1995; and October 23, 1995.

The two Wolf Trap Foundation presidents, Shelton G. Stanfill and Elissa O. Getto, who served during the plan development, met with the project team frequently during team trips. Foundation Executive Vice President Charles Walters was a member of the core planning team for this plan.

LIST OF AGENCIES, ORGANIZATIONS, AND INDIVIDUALS TO WHOM COPIES OF THIS DOCUMENT WERE SENT OR DISTRIBUTED

FEDERAL AGENCIES

Advisory Council on Historic Preservation
Department of the Interior
  U.S. Fish and Wildlife Service
Department of Agriculture
  Soil Conservation Service
Department of Transportation
  Federal Highway Administration
Environmental Protection Agency
  Region 3

CONGRESSIONAL DELEGATION

Hon. Charles S. Robb, U.S. Senate
Hon. John Warner, U.S. Senate
Hon. Frank R. Wolf, U.S. House of Representatives

COMMONWEALTH OF VIRGINIA

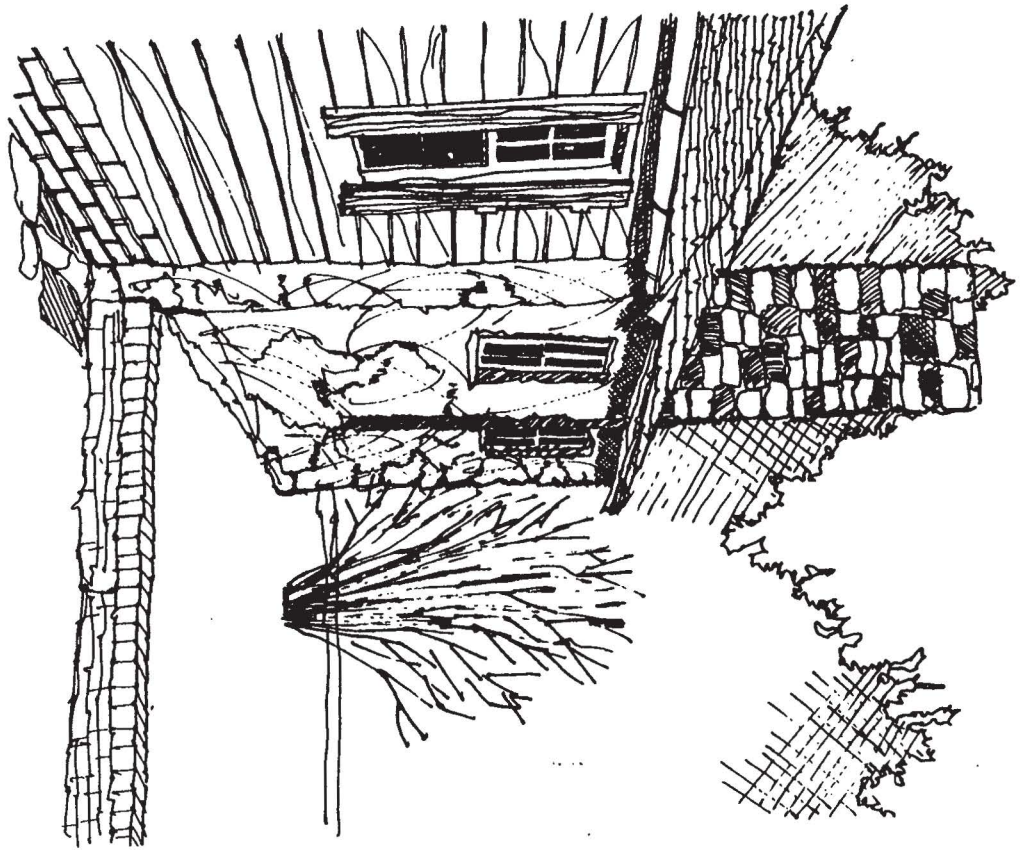
State Senate
House of Delegates
Department of Transportation
Dulles Toll Road
Department of Historic Resources
  State Historic Preservation Officer and Director
Virginia Department of Rail and Public Transportation

LOCAL GOVERNMENTAL AGENCIES

District of Columbia
Fairfax County
  Board of Supervisors
  Police Department
  Fire Department
  Transportation Office
  Office of Comprehensive Planning
  Dulles Corridor Task Force
City of Vienna

ORGANIZATIONS AND BUSINESSES

Wolf Trap Foundation for the Performing Arts
National Wildlife Federation
Metrorail
Federal Aviation Administration
Shouse Village Community Association
The Trails Homeowners' Association
Wolf Trap Woods and Wolf Den Community Association
Bluffs of Wolf Trap Neighborhood Association
Towlston Meadows Community Association
Cinnamon Creek Homeowners' Association
Concerned Individuals



APPENDIXES/BIBLIOGRAPHY/PREPARERS/INDEX

APPENDIX A: LEGISLATION

Public Law 89-671
89th Congress, S. 3423
October 15, 1966

An Act

To provide for the establishment of the Wolf Trap Farm Park in Fairfax County, Virginia, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purpose of establishing in the National Capital area a park for the performing arts and related educational programs, and for recreation use in connection therewith, the Secretary of the Interior is authorized to establish, develop, improve, operate, and maintain the Wolf Trap Farm Park in Fairfax County, Virginia. The park shall encompass the portions of the property formerly known as Wolf Trap Farm and Symphony Hill in Fairfax County, Virginia, to be donated for park purposes to the United States, and such additional lands or interests therein as the Secretary may acquire for purposes of the park by donation or purchase with donated or appropriated funds, the aggregate of which shall not exceed one hundred and forty-five acres. Wolf Trap Farm Park, Va. Establishment.

SEC. 2. The Secretary of the Interior shall administer the park in accordance with the provisions of section 1 of this Act and the Act of August 25, 1916 (39 Stat. 535; 16 U.S.C. 1–4), as amended and supplemented.

SEC. 3. There are authorized to be appropriated such sums as may be necessary, but not in excess of $600,000, to carry out the purposes of this Act. Appropriation.

Approved October 15, 1966.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 1821 (Comm. on Interior & Insular Affairs).
SENATE REPORT No. 1346 (Comm. on Interior & Insular Affairs).
CONGRESSIONAL RECORD, Vol. 112 (1966):
June 30: Considered and passed Senate.
Sept. 19: Considered in House.
Oct. 10: Considered and passed House.

Public Law 101-636
101st Congress

An Act

Nov. 28, 1990
[S. 1869]

To restructure repayment terms and conditions for loans made by the Secretary of the Interior to the Wolf Trap Foundation for the Performing Arts for the reconstruction of the Filene Center in Wolf Trap Farm Park in Fairfax County, Virginia, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. REPAYMENT OF LOANS MADE WITH RESPECT TO WOLF TRAP FARM PARK.

Section 4(b) of the Wolf Trap Farm Park Act (16 U.S.C. 284c(b)) is amended—

(1) by inserting "(1)" after "(b)"; and

(2) by inserting at the end the following:

"(2XA) The term of the loans made pursuant to paragraph (1) which are outstanding on the effective date of this paragraph may not exceed the 25-year period beginning on such date. The remaining obligation of such loans shall be paid in equal annual installments, commencing June 1, 1991, except that for the first 3 payments, the payment shall be $215,000 each year. In addition, such payments (including the first 3 payments) may be reduced in any year by a credit not to exceed $60,000 annually. Such credit shall equal 100 percent of the market value of public service tickets determined at prevailing Foundation box office prices. Such credit shall be allowed only for tickets contributed to entities holding a status referred to in section 501(cX3) of the Internal Revenue Code of 1986.

"(BXI) Unpaid interest on such amount which accrued before the effective date of this paragraph is hereby forgiven.

"(ii) Notwithstanding paragraph (1), there shall be no interest on the loan referred to in subparagraph (A) after the effective date of this paragraph if, within 120 days after such date, the Foundation modifies its agreement with the Secretary to implement this paragraph, paragraph (3), and section 5(cX4). If such agreement is not modified within the 120-day period, interest shall accrue from the effective date of this paragraph in accordance with paragraph (1).

"(C) Notwithstanding any other provision of law, amounts paid to the Secretary pursuant to this paragraph may be retained until expended by the Secretary, in consultation with the Foundation, for the maintenance of structures, facilities, and equipment of the Park.

"(D) The Secretary shall, within 120 days after the effective date of this paragraph, submit a payment schedule to the Foundation specifying the amount of each annual payment to be made by the Foundation pursuant to this paragraph.

"(3) If the Foundation is in default on its obligations under this subsection for more than 60 consecutive days, the Secretary, acting in the public interest, shall terminate the cooperative agreement described in section 5. In the event of a major catastrophe or severe economic situation, the Secretary may submit to the Committee on

Interior and Insular Affairs of the United States House of Representatives and the Committee on Energy and Natural Resources of the United States Senate a recommendation that this paragraph be temporarily suspended. In submitting such a request, the Secretary shall submit clear evidence of the financial status of the Foundation.".

SEC. 2. PROHIBITION ON COMMINGLING FOUNDATION FUNDS AND PARK FUNDS.

Section 5(c) of the Wolf Trap Farm Park Act (16 U.S.C. 284d(c)) is amended—

(1) by striking "and" at the end of paragraph (2);

(2) by striking the period at the end of paragraph (3) and inserting "; and"; and

(3) by adding after paragraph (3) the following:

"(4) the Foundation will maintain accounts for Foundation activities outside of the Park separate from Foundation accounts for presentation of performing arts and related programs presented at the Center and other areas of the Park.".

SEC. 3. STUDY OF PARK FUTURE.

The Wolf Trap Farm Park Act (16 U.S.C. 284 et seq.) is amended by adding at the end the following:

"SEC. 13. STUDY. 16 USC 284 note.

"The Secretary, acting jointly with the Foundation, shall conduct a study and analysis of the operations and management practices which are being used to carry out the purposes of this Act. The study shall include analysis of the management relationship between the Foundation and the Park, a delineation of the operational responsibilities of the Foundation and the Park, and an analysis of the financial condition of the Foundation. Not later than 2 years after the date of enactment of this section, the Secretary shall submit a report of such study and analysis to the Committee on Interior and Insular Affairs of the United States House of Representatives and the Committee on Energy and Natural Resources of the United States Senate.". Reports.

SEC. 4. EFFECTIVE DATES. 16 USC 284c note.

(a) The amendments made by sections 1 and 2 shall take effect on the date on which the Wolf Trap Foundation for the Performing Arts modifies its agreements entered into pursuant to the Wolf Trap

Farm Park Act in a manner which is consistent with and takes into account the amendments made by this Act, as determined by the Secretary of the Interior.

(b) The amendment made by section 8 shall take effect on the date of enactment of this Act.

Approved November 28, 1990.

LEGISLATIVE HISTORY—S. 1859:

HOUSE REPORTS: No. 101-838 (Comm. on Interior and Insular Affairs).
SENATE REPORTS: No. 101-257 (Comm. on Energy and Natural Resources).
CONGRESSIONAL RECORD, Vol. 136 (1990):
Mar. 29, considered and passed Senate.
Oct. 10, considered and passed House, amended.
Oct. 27, Senate concurred in House amendment.

APPENDIX B: ESTIMATED DEVELOPMENT COSTS AND PHASING SCHEDULE

ALTERNATIVE 1

DEVELOPMENT ITEM/PHASE	GROSS CONSTRUCTION COSTS	ADVANCE AND PROJECT PLANNING COSTS	TOTAL PROJECT COSTS
Demolish existing walks	$204,400	$ 39,000	$243,400
Regrade and fill to 12' width	20,400	3,900	24,300
Drainage (determined by design)	0	0	0
Install 12' concrete walkways	227,000	43,300	270,300
Curb and gutter	77,900	14,900	92,800
Lighting - pedestrian/low level; doesn't include wiring	19,700	3,800	23,500
Bathrooms at north concession	235,800	45,000	280,800
GRAND TOTAL - ALTERNATIVE 1	**$785,200**	**$149,900**	**$935,100**

ALTERNATIVE 2

DEVELOPMENT ITEM/PHASE	GROSS CONSTRUCTION COSTS	ADVANCE AND PROJECT PLANNING COSTS	TOTAL PROJECT COSTS
WEST LOT			
Resurface asphalt	$1,222,500	$233,300	$1,455,800
Restripe west lot	48,500	9,300	57,800
Berm at west lot (topsoil)	15,700	3,000	18,700
Landscaping (trees, shrubs, sod)	52,400	10,000	62,400
Directional signage for all park (Harper's Ferry)	0	0	0
Path through woods to Metro stop (clearing and grubbing)	2,600	500	3,100
Asphalt path and lighting	20,300	3,900	24,200
EAST LOT			
Reconfigure; demolish existing paving, curb, and gutter	1,300	300	1,600
Repave existing lot and extension, add new curb and gutter	745,200	142,200	887,400
Grading	100,100	19,100	119,200
Drainage (determined by design)	0	0	0
Mitigation	294,800	56,300	351,100
Lighting from east lots to plaza	262,000	50,000	312,000
Striping	41,900	8,000	49,900
Walkway from all lots - asphalt	132,000	25,200	157,200
Landscaping	327,500	62,500	390,000
Subtotal	**$3,266,800**	**$623,600**	**$3,890,400**

ALTERNATIVE 2 (CONT.)

DEVELOPMENT ITEM/PHASE	GROSS CONSTRUCTION COSTS	ADVANCE AND PROJECT PLANNING COSTS	TOTAL PROJECT COSTS
GIL'S HILL			
Proposed lot at top of Gil's hill (300 cars)	$818,800	$156,300	$975,100
Clearing and grubbing (3 acres)	68,800	13,100	81,900
Grading	1,351,900	258,000	1,609,900
Access road	131,000	25,000	156,000
Paving	851,500	162,500	1,014,000
Mitigation	294,800	56,300	351,100
Drainage (determined by design)	0	0	0
Lighting (does not include electrical lines)	262,000	50,000	312,000
Seeding (disturbed areas outside lot)*	2,600	500	3,100
Bermed areas along Gil's hill and dust bowl (fill and topsoil)	98,300	18,800	117,100
Grading	300,400	57,300	357,700
Landscaping (trees, sod, shrubs, and perennials)	327,500	62,500	390,000
Gil's hill and dust bowl - asphalt paving	1,965,000	375,000	2,340,000
Striping on all crosswalk areas	2,600	500	3,100
Lighting on all pathways to Filene Center	262,000	50,000	312,000
Stabilized turf for Gil's hill and dust bowl	90,800	17,300	108,100
Striping	49,100	9,400	58,500
Subtotal	**$6,877,100**	**1,312,500**	**$8,189,600**

* Can be done by park maintenance less expensively.

ALTERNATIVE 2 (CONT.)

DEVELOPMENT ITEM/PHASE	GROSS CONSTRUCTION COSTS	ADVANCE AND PROJECT PLANNING COSTS	TOTAL PROJECT COSTS
FILENE CENTER			
Realignment of access road into Filene Center	$216,200	$41,300	$257,500
Parking lot at circle	209,600	40,000	249,600
Fill	183,400	35,000	218,400
Grading	74,700	14,300	89,000
Drainage (determined by design)	0	0	0
Curb and gutter (determined by design)	0	0	0
Landscaping	262,000	50,000	312,000
Striping	19,700	3,800	23,500
Lighting	52,400	10,000	62,400
Bus lane and dropoff	196,500	37,500	234,000
Front plaza redesign	294,800	56,300	351,100
Plaza building addition; includes bathrooms (3,000 s.f.)	786,000	150,000	936,000
Bathrooms at concession (stage right)	235,800	45,000	280,800
Subtotal	**$2,531,100**	**$483,200**	**$3,014,300**
GRAND TOTAL - ALTERNATIVE 2			**$15,094,300**

ALTERNATIVE 3

DEVELOPMENT ITEM/PHASE	GROSS CONSTRUCTION COSTS	ADVANCE AND PROJECT PLANNING COSTS	TOTAL PROJECT COSTS
PARKING GARAGE			
Parking garage and access ramp from Dulles Toll Road	0	0	$30,000,000
Sitework for garage (lighting, signs, landscaping)	786,000	150,000	936,000
Exterior walk from garage to plaza - asphalt, signs, lighting, drainage	52,400	10,000	62,400
Underground pedestrian ramp from garage to Filene Center - excavation, concrete reinforcement, finish, lighting)	458,500	87,500	546,000
EAST LOT			
Demolish portion of access road into east lot	14,400	2,800	17,200
Landscaping east lot where road is removed; sod with topsoil*	17,300	3,300	20,600
Restore forested area on top of Gil's hill*	13,100	2,500	15,600
Picnic area	28,800	5,500	34,300
Walkway from east lot (grading, drainage, path, trees, lighting, signs)	262,000	50,000	312,000
Remove old walk and regrade	26,200	5,000	31,200
FILENE CENTER			
Orchard in dust bowl	16,500	3,200	19,700
Dinner tent restaurant (3,000 s.f.)	786,000	150,000	936,000
Sitework (landscaping, utilities)	157,200	30,000	187,200
Exterior/walkway lighting from dinner tent	26,200	5,000	31,200
Walkway from dinner tent - concrete and stone	28,300	5,400	33,700
Access road from Trap Road to circle @ Filene Center - resurface	110,000	21,000	131,000
Subtotal	**$2,782,900**	**$531,200**	**$33,314,100**

* Can be done by park maintenance less expensively.

ALTERNATIVE 3 (CONT.)

DEVELOPMENT ITEM/PHASE	GROSS CONSTRUCTION COSTS	ADVANCE AND PROJECT PLANNING COSTS	TOTAL PROJECT COSTS
FILENE CENTER (CONT.)			
Demolition of existing walks and asphalt	$58,200	$11,100	$69,300
Demolition of circle (asphalt)	53,100	10,100	63,200
Soil and grading of demolished areas not to be resurfaced*	4,700	900	5,600
Realignment of circle	262,000	50,000	312,000
Fill dirt for circle	138,800	26,500	165,300
Paving for circle and bus drop	368,900	70,400	439,300
Landscaping for circle	8,800	1,700	10,500
Sod	32,500	6,200	38,700
Drainage structure for circle (determined by design)	0	0	0
Stone curb and gutter for circle	27,100	5,200	32,300
Tree grates	10,000	1,900	11,900
Stone retaining walls	352,100	67,200	419,300
Flagstone paving at circle/front entry	141,500	27,000	168,500
Landscaping for front entry*	8,300	1,600	9,900
Benches (19)	17,400	3,300	20,700
Lighting	262,000	50,000	312,000
Trash receptacles	5,900	1,100	7,000
Kiosks/signs (Harper's Ferry)	0	0	0
Subtotal	**$1,751,300**	**$334,200**	**$2,085,500**

* Can be done by park maintenance less expensively.

ALTERNATIVE 3 (CONT.)

DEVELOPMENT ITEM/PHASE	GROSS CONSTRUCTION COSTS	ADVANCE AND PROJECT PLANNING COSTS	TOTAL PROJECT COSTS
FILENE CENTER (CONT.)			
Visitor services building	$6,022,700	$1,149,400	$7,172,100
Berm for new building (soil and grading)	786,000	150,000	936,000
Landscaping for berm*	45,900	8,800	54,700
Plaza paving - concrete	156,100	29,800	185,900
Flagstone paving	136,400	26,000	162,400
Benches for interior plaza	9,200	1,800	11,000
Lighting for interior plaza	262,000	50,000	312,000
Trash receptacles for interior plaza	8,800	1,700	10,500
Kiosks for interior plaza (Harper's Ferry)	0	0	0
Signs for interior plaza (Harper's Ferry)	0	0	0
Grading for new lawn seating	52,900	10,100	63,000
Sod for lawn seating	79,300	15,100	94,400
Low level lighting for lawn seating	26,200	5,000	31,200
Tables and chairs for interior plaza (supplied by concessioner)	0	0	0
Demolition of existing lawn seating and sidewalks	3,800	700	4,500
Demolition of existing buildings	4,200	800	5,000
Retaining walls for berm - interior plaza	254,700	48,600	303,300
Subtotal	**$7,848,200**	**$1,497,800**	**$9,346,000**
GRAND TOTAL - ALTERNATIVE 3			**$44,745,600**

ALTERNATIVE 4

DEVELOPMENT ITEM/PHASE	GROSS CONSTRUCTION COSTS	ADVANCE AND PROJECT PLANNING COSTS	TOTAL PROJECT COSTS
WEST LOT			
Repave	$1,222,500	$233,300	$1,455,800
Restripe	48,500	9,300	57,800
Landscape (shrubs to screen from Trap Road)*	5,100	1,000	6,100
Flagstone plaza	55,000	10,500	65,500
Shelter at plaza	78,600	15,000	93,600
Benches	10,500	2,000	12,500
Lighting	26,200	5,000	31,200
EAST LOT (PAVED)			
Sidewalk on west side of trees	16,000	3,100	19,100
Demolish portion of paved islands	3,800	700	4,500
Regrade	3,800	700	4,500
New curb and gutter around lot addition	16,000	3,000	19,000
Curb cut to Trap Road	2,600	500	3,100
Lighting	52,400	10,000	62,400
Infill trees around east lot and Trap Road*	10,400	2,000	12,400
Pedestrian paving - all of site; concrete and flagstone	1,047,300	199,900	1,247,200
East lot cart pickup plaza	41,300	7,900	49,200
Benches	5,200	1,000	6,200
Demolition of old roadbed through new pedestrian area	157,200	30,000	187,200
Infill for old roadbed	8,500	1,600	10,100
Subtotal	**$2,810,900**	**$536,500**	**$3,347,400**

* Can be done by park maintenance less expensively.

ALTERNATIVE 4 (CONT.)

DEVELOPMENT ITEM/PHASE	GROSS CONSTRUCTION COSTS	ADVANCE AND PROJECT PLANNING COSTS	TOTAL PROJECT COSTS
EAST LOT (GRASS)			
Regrade; includes berm on Barn Road	$171,600	$32,800	$204,400
Seeding; east lot and accessible lot (12 spaces)	209,600	40,000	249,600
Irrigate areas @ entry and highly impacted areas	32,800	6,300	39,100
Grass pavers @ entries and steeper slopes	90,800	17,300	108,100
Asphalt access road (11 ft.)	262,000	50,000	312,000
Fence - all of site	78,600	15,000	93,600
Security lighting in trees	52,400	10,000	62,400
Trees along Trap Road*	14,000	2,700	16,700
Employee parking (demolition, grading, gravel surface)	65,500	12,500	78,000
Trees and shrubs to screen employee parking*	48,500	9,300	57,800
FILENE CENTER			
Fill for dimple	106,400	20,300	126,700
Entry plaza @ Trap Road	56,200	10,700	66,900
Entry plaza @ Barn Road/Lilac Walk	114,600	21,900	136,500
Entry structure with sign and lighting	98,300	18,800	117,100
Trees along Barn Road*	33,100	6,300	39,400
Lighting, banners, and trash receptacles (main entry/lilac walk)	131,000	25,000	156,000
Lilacs to infill along walk*	1,300	300	1,600
Grass pavers south of tunnel where road has been demolished	7,900	1,500	9,400
Lighting for accessible/permit parking	52,400	10,000	62,400
New south access road (curve only)	22,300	4,300	26,600
Resurface existing road, tack coat, 2" mat, seal and chip	80,700	15,400	96,100
Subtotal	**$1,730,000**	**$330,400**	**$2,060,400**

* Can be done by park maintenance less expensively.

ALTERNATIVE 4 (CONT.)

DEVELOPMENT ITEM/PHASE	GROSS CONSTRUCTION COSTS	ADVANCE AND PROJECT PLANNING COSTS	TOTAL PROJECT COSTS
FILENE CENTER (CONT.)			
Marquee	$262,000	$50,000	$312,000
Directional signage into park	52,400	10,000	62,400
Trees along access road*	21,400	4,100	25,500
New accessible lot west of proposed visitor services building - grading, asphalt, paving	111,400	21,300	132,700
Retaining wall at accessible lot	63,900	12,200	76,100
Striping	1,300	300	1,600
Crosswalk to gated entry plaza	68,800	13,100	81,900
New building	3,854,000	735,500	4,589,500
Plaza	524,000	100,000	624,000
Landscaping	770,800	147,100	917,900
Gated entry plaza	275,100	52,500	327,600
Plaza @ north concessions	137,600	26,300	163,900
Lighting	65,500	12,500	78,000
Low seat wall @ back of lawn seating	16,500	3,200	19,700
Trash receptacles incorporated with lighting	15,700	3,000	18,700
Regrade lawn seating	65,800	12,600	78,400
Turf	96,900	18,500	115,400
Irrigation	13,100	2,500	15,600
New concrete steps	38,300	7,300	45,600
Lighting in steps	52,400	10,000	62,400
Gates for 2 entry plazas (decorative iron)	209,600	40,000	249,600
Subtotal	**$6,716,500**	**$1,282,000**	**$7,998,500**
GRAND TOTAL - ALTERNATIVE 4			**$13,406,300**

* Can be done by park maintenance less expensively.

APPENDIX C: VEGETATIVE SPECIES IDENTIFIED IN PARK AREA

COMMON NAME	SCIENTIFIC NAME
Red maple	Acer rubrum
Smooth alder	Alnus serrulata
Broomsedge	Andropogan virginius
River birch	Betula nigra
Hornbeam	Carpinus caroliniana
Pignit hickory	Carya glabra
Mockernut hickory	C. Tomentosa
Daisy fleabane	Erigeron strigosis
American beech	Fagus grandifolia
Meadow fescue	Festuca arundinacea
American holly	Ilex opaca
Spotted touch-me-not	Impatiens capensis
Eastern red cedar	Juniperous virginiana
Mountain laurel	Kalmia laifolia
Spicebush	Lindera benzoin
Tulip tree	Liriodendron tulipifera
Japanese honeysuckle	Lonicera japonica
Staghorn clubmoss	Lycopodium clavatum
Groundpine	Lycopodium spp.
Partridgeberry	Michella repens
Watercress	Nastutrium officinale
Black gum	Nyssa sylvatica
Virginia creeper	Parthenocissus quinquefolia
Virginia pine	Pinus virginiana
Sycamore	Platanus occidentalis
Wild cherry	Prunus serotina
White oak	Quercus alba
Scarlet oak	Q. Coccinea
Shingle oak	Q. Imbricaria
Chestnut oak	Q. Prinus
Red oak	Q. Rubra
Post oak	Q. Stellata
Black oak	Q. Velutina
Poison ivy	Rhus radicans
Staghorn sumac	Rhus typhina
Black locust	Robinia pseudoacacia

COMMON NAME	SCIENTIFIC NAME
Multiflora rose	Rosa multiflora
Black willow	Salix nigra
Sassafras	Sassafras albidum
Goldenrod	Solidago spp.
Greenbrier	Smilax rotundifolia
Meadow rue	Thalictrum polygamum
Arrow-wood	Viburnum dentatum
Blue marsh-violet	Viola cucullata

APPENDIX D: AMPHIBIANS, MAMMALS, AND REPTILES IDENTIFIED IN PARK AREA

COMMON NAME	SCIENTIFIC NAME	HABITAT
AMPHIBIANS		
American toad	Bufo americanus	varies widely
Fowler's toad	Bufo woodhousei fowleri	varies widely
Northern cricket frog	Acris crepitans crepitans	stream beds
Spring peeper	Hyla crucilier	moist woods, streams
Woodfrog	Rana syvatica	moist woodlands
Green frog	Rana clairitana melonota	streams
Southern leopard frog	Rana utricularia	streams
Pickeral frog	Rana palustris	swamps
Spotted salamander	Ambystoton maculatum	moist woodlands
Red-spotted newt	Notophthalmus viridescens viridencens	ponds, marshes
Red-backed salamander	Plethodon cinereus	wooded areas
Slimy salamander	Plethodon glutinosus glutinosus	wooded ravines
Northern red salamander	Pseudotriton ruber ruber	moist stream areas
Northern two-lined salamander	Euryces bislineata bislineata	moist stream areas
Long-tailed salamander	Eurycea longicauda longicauda	moist stream areas
MAMMALS		
Opossum	Didelphis marsupialis	upland forests, fields
Masked shrew	Sorex cinereus	upland forests, fields
Least shrew	Crytotis parva	fields, marshes
Short-tailed shrew	Blarina brevicauda	upland forests, fields, marshes
Starnose mole	Condylura cristata	low wet fields, marshes
Eastern mole	Scalopus aquaticus	moist fields
Red bat	Lasiurus borealis	woodlands
Raccoon	Procyon lotor	woodlands
Striped skunk	Mephitis mephitis	fields
Red fox	Vulpes fulva	fields
Gray fox	Urocyon cinereoargentcus	open forests
Woodchuck	Marmota monax	open forests
Eastern chipmunk	Tamias striatus	forests
Eastern gray squirrel	Sciurus arizonensis	oak and pine forests
Red squirrel	Tmiasciurus hudsonicus	evergreen and mixed forests
Southern flying squirrel	Glaucomys volans	woodlots and forests
White footed mouse	Peromyscus leucopus	woodlands, fields
House mouse	Mus musculus	buildings
Muskrat	On datra zibethica	marshes

COMMON NAME	SCIENTIFIC NAME	HABITAT
MAMMALS (CONT.)		
Cottontail	Sylvilagus floridanus	woodlands
Whitetail deer	Odocoilcus virginianus	woodlands
REPTILES		
Snapping turtle	Cholydra serpentina	permanent fresh water
Eastern box turtle	Terrapene carolina carolina	woodlands
Eastern fence lizard	Sceloporus undulatus	woodlands
Five-lined skink	Eumeces fasciatus	cutover woodlots, rock piles, debris
Broad-headed skink	Eumeces laticeps	woodlands, swamps, forests, urban lots
Northern water snake	Natrix sipedon sipedon	quiet ponds and swamps
Northern red-billed snake	Storeria occipitomaculata	open woods and bogs
Rough-green snake	Opheodrys aestirus	domeo vegetation
Eastern garter snake	Thamnophis siratalis sirtalis	meadows, marshes, woodlands
Eastern worm snake	Carphophis amoenus ameonus	under stones, rocks, moist earth
Black racer	Coluber constrictor	open areas
Ring-necked snake	Diadophis punctatus edwardsi	cutover areas and wooded hillside
Copperhead	Agkistrodon centortrix mokasen	rocky wooded hillsides and mountains
Painted turtle	Chrysems picta picta	fresh water

SOURCES: National Wildlife Federation
Craig E. Tufts, Naturalist at Laurel Ridge
A Field Guide to Reptiles and Amphibians of Eastern and Central North America, by Roger Conant
A Field Guide to the Mammals, by William H. Burt and Richard P. Grossenheider

APPENDIX E: FISH SPECIES IDENTIFIED IN PARK AREA

Anguilla costrata (Lesueur)	Anguillidea
Catostomus commorsoni (Lecepede)	Cotostomidae
Lepomis symmetricus (Forbes)	Centrarchidae
Rhinichthys stratulus (Herman)	Cyprinidae
Rhinichthys cataractae (Valenciennes)	Cyprinidae
Notropis cerasinus (Cope)	Cypinidae
Noturus insignia (Richardson)	Ictaluridae
Etheostoma nigrum (Rafinesque)	Percidae

SOURCES: L. K. Thomas PhD. Ecological Services Laboratory, National Park Service.
Note: The fish listed are those recovered from the fish kill along Wolf Trap Creek in the summer of 1976.

APPENDIX F: BIRD SPECIES IDENTIFIED IN PARK AREA

COMMON NAME	SCIENTIFIC NAME	HABITAT	SEASONAL STATUS
GEESE AND DUCKS			
Whistling swan	Olor columbianus	-	*
Canada goose	Branta canadensis	-	*
Mallard duck	Anas platyrhynchoa	-	*
Wood duck	Aix sponsa	woods and streams	summer
VULTURES, HAWKS, FALCONS, ETC.			
Turkey vulture	Cathartes aura	open areas and fields	resident
Black vulture	Coragyps atratus	open areas and suburbs	resident
Cooper's hawk	Accipiter cooperii	open woodlands and wood edges	resident (uncommon)
Sharp-shinned hawk	Accipiter striatus	open woodlands and wood edges	resident
Harrier (marsh hawk)	Circus cyancus	-	*
Red-tailed hawk	Buteo jamaicensis	open country	resident
Red-shouldered hawk+	Buteo lineatus	moist woodlands	resident
Broad-winged hawk	Buteo platypterus	woodlands	*
Kestrel+ (sparrow hawk)	Falco sparverius	open and semi-open country	resident
QUAIL, TURKEYS, ETC.			
Bobwhite quail+	Colinus virginianus	fields and open pineland	resident
HERONS, EGRETS			
Great-blue heron	Ardea herodias	-	*
Green-heron	Butorides virescens	fresh and salt water-ponds	summer
PLOVERS			
Kildeer+	Charadrius vociferus	fields and pastures	resident
SANDPIPERS			
American woodcock	Philohela minor	moist woodlands	resident
Common snipe	Cappella gallinago	marshes and bogs	spring and fall
GULLS, TERNS			
Ring-billed gull	Larus Delawarensis	-	*
DOVES, PIGEONS			
Rock dove	Columba livia	urban areas	resident
Mourning dove	Zenaidura macroura	suburbs	resident
CUCKOOS			
Yellow-billed cuckoo+	Coccyzus americanus	woods and brush	resident
OWLS			
Great-horned owl+	Bubo virginianus	suburban	resident
Screech owl+	Otus asio	urban and suburban	resident

COMMON NAME	SCIENTIFIC NAME	HABITAT	SEASONAL STATUS
GOATSUCKERS			
Night hawk	*Chordeiles minor*	suburbs	summer
SWIFTS AND HUMMINGBIRDS			
Chimney swift	Chaetura pelagica	suburbs	summer
Ruby-throated hummingbird	Archilochus colubris	suburbs	summer
KINGFISHERS			
Belted kingfisher	Megaceryle alcyon	streams and ponds	summer
WOODPECKERS			
Common flicker+ (yellow-shafted)	Colaptes auratus	open country, large trees	resident
Pileated woodpecker	Dryocopus pileatus	open country, large trees	resident (uncommon)
Red-billed woodpecker+	Centurus carolinus	woods	resident
Yellow-billed sapsucker	Sphyrapicus varius	woods and orchards	resident
Hairy woodpecker+	Dendrocopos villosus	upland forest, woods, suburbs	resident
Downy woodpecker+	Dendrocopos pubescens	upland forest, woods, suburbs	resident
FLYCATCHERS			
Eastern kingbird	Tyrannus tyrannus	open edge	summer
Great crested flycatcher	Myiarchus criaitus	woods	summer
Eastern phoebe+	Sayornis phoebe	farm buildings and bridges	summer
Eastern wood pewee+	Conopus virens	woods	summer
SWALLOWS			
Barn swallow	Hirundo rustica	suburbs	summer
Tree swallow	Iridoproene bicolor	open areas, suburbs	*
Bank swallow+	Riparia riparia	open areas, suburbs	summer and migrant
Purple martin+	Progne subis	open areas, suburbs	summer and migrant
CROWS AND JAYS			
Blue jay+	Cyanocitla cristata	woods, suburbs	resident
Common crow+	Corvus brachyrhynchos	suburbs	resident
Fish crow	Corvus ossifragus	suburbs, river edge	resident
CHICKADEES, TITMICE			
Carolina chickadee+	Parus carolinenais	suburbs	resident
Tufted titmouse+	Parus bicolor	suburbs	resident
NUTHATCHES, BROWN CREEPER			
White-breasted nuthatch	Sitta carolinensis	woodlands	resident
Brown creeper	Corthia familiaris	woodlands	resident

COMMON NAME	SCIENTIFIC NAME	HABITAT	SEASONAL STATUS
WRENS			
House wren+	Troglogytes aedon	woods edge, suburbs	summer
Carolina wren+	Thryothorus ludovicinianus	woods edge, suburbs	resident
MIMIC THRUSHES			
Mockingbird+	Mimus polyglottos	suburbs	resident
Gray catbird+	Dumetella carolinenus	suburbs	summer
Brown thrasher+	Toxostoma rufum	suburbs	summer
THRUSHES			
American robin+	Turdus migratorius	lawns, woods, suburbs	summer
Wood thrush+	Hylocichla mustelina	lowland woods	summer
Hermit thrush	Hylocichla guttata	woodlands	migrant
Veery	Hylocichla fuscescens	woodlands	summer
Eastern bluebird+	Sialia sialis	farm yards, orchards	summer
WAXWINGS			
Cedar waxwing	Bobycilla cedrorum	suburbs	winter
STARLING			
Starling	Sturnus vulgaris	fields, urban areas	resident
VIREOS			
Solitary vireo	Vireo solitarius	woods	summer
White-eyed vireo	Vireo griseus	wet thickets	summer
Red-eyed vireo	Vireo olivaceus	woods	summer
WOODWARBLERS			
Black and white warbler	Mniotilta varia	woods	summer
Tennessee warbler	Vermivora peregrina	woods	migrant
Northern parula warbler	Parula americana	lowland woods	summer
Yellow warbler	Dendroica petechia	suburban shrubbery	summer
Magnolia warbler	Dendroica magnolia	upland forest	migrant
Yellow-rumped warbler	Dendroica petechia	suburban shrubbery	summer
Black-throated green warbler	Dendroica virens	upland forest	migrant
Black-throated blue warbler	Dendroica cacrulcacens	mountain undergrowth	migrant
Blackburnian warbler	Dendroica fusca	woods	migrant
Chestnut-sided warbler	Dendroica pensylvanica	woods	migrant
Bay-breasted warbler	Dendroica castanea	woods	migrant
Blackpoll warbler	Dendroica striata	woods, suburbs	migrant
Pine warbler	Dendroica pinas	woods, suburbs	summer
Prairie warbler	Dendroica discolor	saplings, wood margins	summer
Ovenbird	Seiurus aurocapillua	woods	summer
Louisiana waterbrush	Seiurus motacilla	rivers and swamps	summer (uncommon)

COMMON NAME	SCIENTIFIC NAME	HABITAT	SEASONAL STATUS
WOODWARBLERS (CONT.)			
Yellowthroat+	Geothlypis trichas	moist grass and shrubs	summer
Yellow-breasted chat	Icteria virens	thickets	summer
Kentucky warbler	Oporornis formosus	moist woods	summer
Canada warbler	Wilsonia canadensis	lowland woods	migrant
American redstart	Setophaga ruticilla	lowland woods	summer
WEAVER FINCHES			
House sparrow+	Passer domesticus	farms, cities, and suburbs	resident
BLACKBIRDS			
Eastern meadowlark	Sturnella magna	fields and fences	resident
Red-winged blackbirds+	Agelalus phoeniceus	marsh, fields	summer
Common grackle	Quiscalus quiscala	suburbs	summer
Brown-headed cowbird+	Molothrus ater	suburbs, open areas	resident
Northern oriole (Baltimore)	Icterus galbula	shade trees	summer
TANAGERS			
Scarlet tanager+	*Piranga olivacea*	woods	summer
GROSBEAKS, FINCHES, SPARROWS			
Cardinal+	Richmondena cardinalis	suburbs, wood edge	resident
Rose-breasted grosbeak	Pheucticus ludovicianus	suburban woods	migrant
Evening grosbeak	Hesperiphona vespertina	pines	winter
Indigo bunting+	Passerina cyanea	wood margins	summer
Purple finch	Carpodacus purpureus	suburbs	winter
House finch	Carpodacus mexicanus	suburbs	resident (uncommon)
American goldfinch+	Spinus tristis	weedy fields and bushes	resident
Rufous-sided towhee+	Pipilo erythrophthalmus	undergrowth, wood margins	resident
Slate-colored junco	Junco hyemalia	fields, wood margins	winter
Chipping sparrow	Spizella passerina	open grass	summer
Field sparrow+	Spizella pusilla	fields, tall grass	resident
White-throated sparrow	Zonotrichia albicollis	lowland woods, suburbs	winter
Fox sparrow	Passerella iliaca	thickets and brush	winter
Song sparrow+	Melospiza melodis	bushes, wood edge, suburbs	resident

* Seen overhead in migration
\+ Recent breeder at Laurel Ridge

SOURCES: National Wildlife Federation
Craig E. Tufts, Naturalist at Laurel Ridge
A Guide to Field Identification - Birds of North America , Golden Press, N.Y. 1966

APPENDIX G: SECTION 7 CONSULTATION WITH U.S. FISH AND WILDLIFE SERVICE

N21 (DSC-RP)
WOTR-101-02A

October 13, 1995

Mr. Andrew Moser
US Fish and Wildlife Service
Division of Ecological Services
1825 Virginia Street
Annapolis, Maryland 21401

Dear Mr. Moser:

Reference: Wolf Trap Farm Park, Package 101, Project Type 02A

Subject: Rare, Threatened and Endangered Species

The National Park Service is currently preparing a general management plan and environmental impact statement for Wolf Trap Farm Park located in Vienna, Virginia. It is possible new parking facilities will be proposed for this national park which will result in the removal of some vegetation. (See enclosed map for location of the park. Please note any new construction would not affect the wetlands shown).

In compliance with Section 7 of the Endangered Species Act, the National Park Service is requesting information from your office regarding federally listed rare, threatened, endangered or candidate species, species of special concern or critical habitat that could be, or are known to be within this area.

We have consulted with the Commonwealth of Virginia, Division of Natural Heritage. They believe the potential for locating rare or unique species or unique natural communities is very low (see enclosed letter).

We would appreciate a letter advising our office as to the presence of any endangered or threatened species or critical habitat. If the park does not contain any endangered species to your knowledge, please send a letter for our records, to my attention, stating this fact.

If you have any questions concerning this consultation, please contact me at (303) 969-2412. Thank you for your assistance in this matter.

Sincerely,

/s/ Linda Dahl

for Lou DeLorme
Project Manager

Enclosures

cc w/o enc.:
Field Director, National Capital Area
Attn: Patrick Gregerson
bcc w/o enc:
[redacted] D. Vana-Miller, ccmail Lou DeLorme
RP:MSMazel:10/05/95:2309:WOTR

George Allen
Governor

Becky Norton Dunlop
Secretary of Natural Resources

H. Kirby Burch
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

Main Street Station, 1500 East Main Street Suite 312

TDD (804) 786-2121 Richmond, Virginia 23219 (804) 786-7951 FAX (804) 371-2674

9 September 1995

Ms. Miriam Mazel
U.S. Department of the Interior
National Park Service
Denver Service Center TEA
P.O. Box 25287
Denver, CO 80225

Dear Ms. Mazel:

Thank you for the opportunity to review the proposed development at Wolf Trap Farm Park, Virginia. As we discussed, the biologists for the Department of Conservation and Recreation, Division of Natural Heritage has reviewed the site plans that you provided for the 6.7 acres as divided into five distinct sites.

Based on the assessment of staff biologists, there is no need for an on-site assessment as it pertains to the proposed projects. The potential for locating rare species or unique natural communities is very low. This conclusion was derived based on the assessment of the soil types , geologic features, topography, consultation of the Biological Conservation Datasystem (BCD), and staff knowledge of this site, and surrounding area.

If the scope of this project is revised, we would appreciate an opportunity to review these changes, and provide further review.

If you have any questions, please feel free to contact me.

Sincerely,

Leslie D. Trew
Natural Heritage Inventory Manager
Division of Natural Heritage

APPENDIX H: AMPHITHEATERS AND OTHER VENUES

AMPHITHEATERS IN WASHINGTON, D.C. AREA

VENUE	SEATING	PARKING	PROGRAMMING
Wolf Trap Farm Park, Vienna, VA	7,000 total; 3,874 sheltered	3,000	Popular, classical, musicals, ballet, rock, country, jazz
Merriweather Post Pavilion, Columbia, MD	15,290 total; 5,290 sheltered	5,000 onsite; 2,500 walking distance	Popular, rock, country
Nissan Pavilion at Stone Ridge, Gainesville, VA	25,000 total; 10,000 sheltered, including 1,286 VIP	Data not available	Popular, rock, symphonic, country, jazz, etc.

OTHER AMPHITHEATERS

VENUE	SEATING	PARKING	PROGRAMMING
Tanglewood Amphitheatre, Lenox, MA	12,421 total; 5,000 permanent	Onsite, total not available	Symphonic, dance, jazz
Ravinia Festival Park, Highland Park, IL	3,300 seats; 15,000 lawn	1,000 onsite; 5,000 walking distance	Symphonic, pop, jazz, dance, multicultural

OTHER CONCERT VENUES IN WASHINGTON, D.C. AREA

VENUE	SEATING	PARKING	PROGRAMMING
RFK Stadium, Washington, DC	52,000 for concerts	12,500 onsite	Sports, pop concerts
U.S. Air Arena, Landover, MD	18,000–20,000 seats	7,000 onsite	Sports, pop concerts
Patriot Center, George Mason University, Fairfax, VA	10,200 seats	3,500 onsite; 6,000 walking distance	Sports, ice shows, pop concerts
D.C. Armory, Washington, DC	10,000 seats	12,500 used with RFK	Sports, circus, pop concerts
Constitution Hall, Washington, DC	3,746 seats	Parking within walking distance	Popular, rock, mulicultural, jazz
Carter Barron Amphitheatre, Washington, DC	4,200 seats (general admission)	1,900 onsite	Multicultural (summer program)
John F. Kennedy Center, Washington, DC	2,759 - Concert Hall; 2,316 - Opera House 1,130 - Eisenhower Theatre	1,900 onsite	Symphonic, opera, dance, shows, jazz, folk, pop
Centre for the Performing Arts, George Mason University, Fairfax, VA	2,000 seats - Concert Hall	3,500 combined use with the Patriot Center	Dance, jazz, folk, symphony,
Warner Theatre, Washington, DC	1,980 seats	Parking within walking distance	Shows, dance, pop, jazz, folk
National Theatre	1,672 seats	Parking within walking distance	Musicals, dramas, comedy, jazz

VENUE	SEATING	PARKING	PROGRAMMING
Lisner Auditorium, George Washington, University, Washington, DC	1,490 seats	Parking within walking distance	Multicultural, jazz, folk, pop, dance, symphonic, drama
Lincoln Theatre, Washington, DC	1,200–1,250 seats	Parking within walking distance	Multicultural, shows, comedy, benefits

Sample 1995 Performances and Ticket Prices Wolf Trap Farm Park and Similar Area Venues					
	Kennedy Center	**Merriweather Post Pavilion**	**Nissan Pavilion**	**Patriot Center**	**Wolf Trap Farm Park**
Country & Western	N/A	Vince Gill $17.50 lawn	Brooks & Dunn $14.75 - $34.75 Reba MacIntyre $20.75 lawn	Alabama $23	Trisha Yearwood $14 - $24 Clint Black $10 - $27
Musical	Hello Dolly $40 - $65	Jesus Christ Superstar $15 - $35	N/A	N/A	State Fair $15 - $39
Pop & Rock	N/A	Alman Brothers $20 - $25 Elton John $25 lawn Diana Ross $17 - $50	Alman Brothers $14.75 - $29.75 Elton John $14.75 - $34.75 Steve Miller Band $14.75 - $34.75	Dave Matthews Band $22.50 White Zombies/Ramones $21.50	Ringo Starr & His All-Star Band $16 - $26 Santana/Jeff Beck $18 - $30 Ray Charles $16 - $25
Jazz	Billy Taylor Jazz Trio $25	Jazz Festival $15 - $30	N/A	N/A	Jazz Explosion $14 - $22 Grover Washington/Buddy Guy $16 - $24
Symphony/Ballet/Classical	The Ballet Company $31.50 - $67.50 American Ballet $29.50 - $62 Dance Theater of Harlem $21.50 - $53	N/A	National Symphony $17.50 - $32.50	Nutcracker on Ice $31.50 - $41.50	National Symphony $14 - $28 Paul Taylor Dance Company $7 - $25 The Kirov Ballet $16 - $42
Parking Charges	$6.00/vehicle	$2.50/ticket, added when purchased	$5.00/vehicle	parking fee included in ticket (amount not disclosed)	No charge

SOURCE: Ticketmaster (1995)

BIBLIOGRAPHY

Amusement Business

1994 *Amphitheaters Spotlight.* April 2.

1995a *Amphitheaters Spotlight.* April 11.

1995b "AudArena Stadium." *International Guide.*

Bowlby and Associates, Inc.

1994 "Wolf Trap Farm Park Traffic and Concert Noise Assessment." Brentwood, TN.

Caldwell, Georgia

1988 "Wolf Trap's Seasonal Ingredients." *Virginia Country.* Spring issue.

Cascio, Chuck

1988 "Inside Wolf Trap." *Dominion.* May/June issue.

Fairfax County

1991 *The Comprehensive Plan for Fairfax County, Virginia.*

Fairfax County Economic Development Authority

1994 *Annual Report.*Vienna, VA.

Fairfax County Park Authority

1994 "Planning Tomorrow's Parks Today." *Park Comprehensive Plan, Phase II, Existing Conditions Report.*

National Park Service, U.S. Department of the Interior

1974 "Wolf Trap Farmhouse, National Register of Historic Places Nomination Form. National Capital Parks, Washington, DC.

1979 *An Assessment of Archeological Resources, Wolf Trap Farm Park, Fairfax County, Virginia*, by John F. Pousson. On file at Denver Service Center, Denver, CO.

1980 "Information Base, Wolf Trap Farm Park for the Performing Arts, Virginia." On file at Denver Service Center, Denver, CO.

1983 *Wolf Trap Farm Park: An Administrative History*, by Barry Mackintosh. History Division, Washington, DC.

1992 *Resource Management Plan, Wolf Trap Farm Park for the Performing Arts.* On file at Wolf Trap Farm Park, Vienna, VA.

1993 "Statement for Management, Wolf Trap Farm Park for the Performing Arts."

1995 *Visitor Services Project, Wolf Trap Farm Park for the Performing Arts*, d by Margaret Littlejohn, Visitor Services Project Western Coordinator. Cooperative Park Studies Unit, University of Idaho, Moscow, ID.

National Park Service, U.S. Department of the Interior, and Wolf Trap Foundation for the Performing Arts

1993 "Joint Management Study." On file at Denver Service Center, Denver, CO.

Office of Research and Statistics, County of Fairfax, Virginia

1993 *Standard Reports - Providing a Summary and Analysis of Housing, Development Activity, Population and Land Use Data for Fairfax County.*

Performance, Inc.

1993 *Performance Guide/Facilities.* Fort Worth, TX.

Ring, Constance K.

1982 *Wolf Trap Farm Park: A History of Land Ownership.*

Robert Peccia & Associates
1993 *Traffic and Parking Analysis Study, Wolf Trap Farm Park for the Performing Arts, Fairfax County, Virginia.* Prepared for the National Park Service under A/E Contract No 9. CX 2000-1-0011, Task Order No 32.

Virginia Department of Rail and Public Transportation
1994 *Dulles Corridor Task Force Preliminary Report.*

Wolf Trap Foundation for the Performing Arts
1974 "Site History Chronology, Wolf Trap Farm for the Performing Arts/Filene Center." Vienna, VA.

1991 *Wolf Trap - Celebrating the Past, Looking to the Future*, by Judy Braun Zegas. Vienna, VA.

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Jim Hauver, Chief of Maintenance
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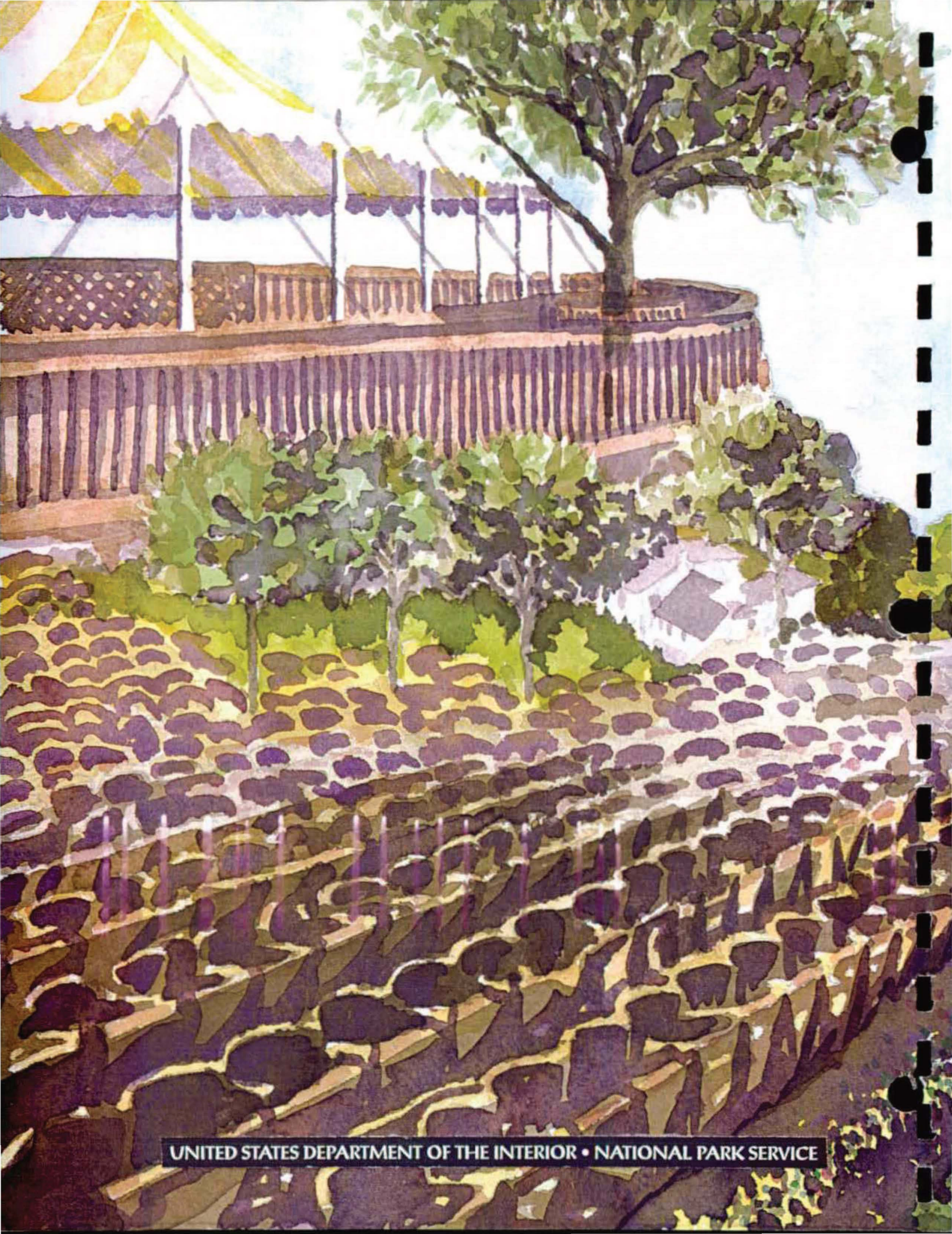
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Publication services were provided by the graphics staff, Resource Planning Group, Denver Service Center.
NPS D-18 / January 1997



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