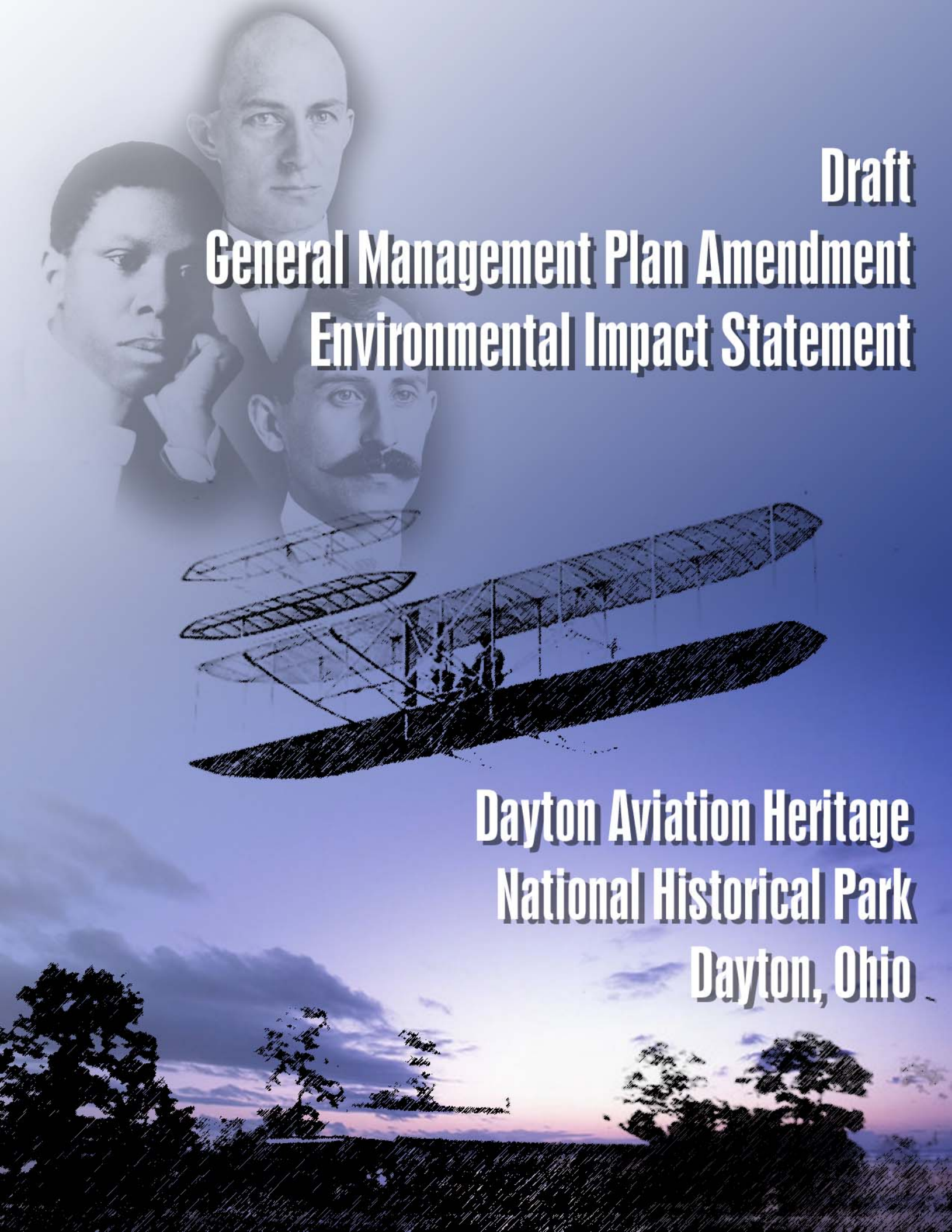

Draft
General Management Plan Amendment
Environmental Impact Statement

Dayton Aviation Heritage National Historical Park
Dayton, Ohio

How to Comment on This Plan:

Comments on the *Draft General Management Plan Amendment / Environmental Impact Statement, Dayton Aviation Heritage National Historical Park* are welcome and will be accepted for 60 days after the Environmental Protection Agency's notice of availability appears in the *Federal Register*. You can submit your comments via mail or electronically.

Send or hand-deliver written comments to:

Superintendent, Dayton Aviation Heritage National Historical Park
30 South Williams Street
P.O. Box 9280
Wright Brothers Station
Dayton, Ohio 45409-9280

You may comment electronically via the Internet by sending comments to the Dayton Aviation Heritage National Historical Park web site at http://www.nps.gov/daav_info@nps.gov.

You may comment electronically via e-mail by sending comments to:
daav_superintendent@nps.gov

Regardless of how you comment, please include your name and street address with your message. Please submit electronic comments as a text file avoiding the use of special characters or any form of encryption.

Please be aware that, because of public disclosure requirements, the National Park Service must make the names and address of commenters public, if requested. However, you may request that your information not be released. If you wish to have your name and/or address withheld, you must state this prominently at the beginning of your comments. The National Park Service will determine whether the information may be withheld under the Freedom of Information Act, and will honor your request to the extent allowed by law.

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Draft

General Management Plan Amendment and Environmental Impact Statement

Dayton Aviation Heritage National Historical Park

Dayton, Ohio

Three alternatives were identified for the management of The Wright Cycle Company complex and Huffman Prairie Flying Field units of Dayton Aviation Heritage National Historical Park.

Alternative A – No Action / Continue Current Management would continue to manage all aspects of Dayton Aviation Heritage National Historical Park in a manner consistent with the park's 1997 general management plan.

Alternative B would be an enhanced experience for the traditional visitor to national parks. Visitors would expect an enjoyable, primarily contemplative experience that would increase their knowledge of history, literature, and/or aviation.

Alternative C would continue to serve traditional visitors to national parks. However, its primary goal would be to increase regional involvement, particularly in the interpretation, education, and outreach aspects of the park. The park would become a vibrant part of the region and visitors would expect an active, participatory experience. Alternative C is the preferred alternative.

Compared to the alternative to continue current management, Alternative B would have moderate to major, adverse effects on the eastern massasauga rattlesnake, a special concern species at the federal level; major, adverse effects on wetlands; and major, adverse effects on the ability to implement the Wright-Patterson Air Force Base endangered species management plan.

Alternative C could have a long-term, major adverse effect on levels of service at the intersection of Kauffman Avenue and Ohio Highway 444. In response, the Ohio Department of Transportation would implement mitigating actions that would reduce the intensity of the adverse effect on traffic to long-term, moderate. Major beneficial effects would be associated with the visitor programming and community outreach components of this alternative.

Lead Agency:
National Park Service
Dayton Aviation Heritage National Historical Park

Cooperating Agency:
U.S. Air Force
Wright-Patterson Air Force Base

This document will be on public review for 60 days after the U.S. Environmental Protection Agency has published a Notice of Availability in the *Federal Register*. There will also be a notice in the local media stating when the document is available, and identification of the deadline for submitting comments.

For more information on this plan amendment, please contact:

Superintendent, Dayton Aviation Heritage National Historical Park
P.O. Box 9280, Wright Brothers Station
Dayton, Ohio 45409-9280
Phone: 937-225-7705

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EXECUTIVE SUMMARY

PURPOSE OF AND NEED FOR THE ACTION

A general management plan is the basic guidance document for decision making at a national park. It defines the park's mission and goals, identifies desired future conditions, and establishes activities that are appropriate within various areas of the park. The general management plan for Dayton Aviation Heritage National Historical Park was completed in 1997 (NPS 1997c). At that time, the park had been in existence for fewer than five years. Since then, facilities, infrastructure, and site access that were only general concepts have been constructed and/or rehabilitated and put into operation. Additionally, the terrorist attacks of September 11, 2001 have resulted in heightened security issues and concerns associated with the operation of the Huffman Prairie Flying Field unit.

Dayton Aviation Heritage National Historical Park is unusual in its involvement of five legislated partners who own and manage Congressionally designated components of the park. The legislated partners and park units are as follows:

- **National Park Service:** The Wright Cycle Company complex, including The Wright Cycle Company building and the Wright-Dunbar Interpretive Center.
- **U.S. Air Force:** Huffman Prairie Flying Field and the Huffman Prairie Flying Field Interpretive Center at the Wright Memorial.
- **Aviation Trail, Inc**.: Aviation Trail Visitor Center and Museum located at The Wright Cycle Company complex.
- **Ohio Historical Society:** Paul Laurence Dunbar State Memorial.
- **Carillon Historical Park:** John W. Berry, Sr., Wright Brothers Aviation Center, including Wright Hall and the Wright Flyer III.

The latter two legislated partners have successfully operated their sites with effective resource protection and enjoyable visitor experiences for more than 50 years. These sites are not included in this general management plan amendment.

Within the purposes and goals of the park's existing general management plan, this amendment focuses on visitor experience, facility use, and partnerships with the region and community within and near The Wright Cycle Company complex. It also addresses connections, both travel and interpretive, between the Huffman Prairie Flying Field Interpretive Center at the Wright Memorial and nearby Huffman Prairie Flying Field. This amendment will be considered successful if it meets the following objectives:

- Addresses current opportunities for regional and community partnerships and considers possibilities for future partnering.
- Addresses the need for a maintenance and storage facility at or near The Wright Cycle Company complex.
- Considers the need for boundary expansion at The Wright Cycle Company complex.
- Provides a management strategy for unused or underutilized areas at The Wright Cycle Company complex, including the backyards, vacant house at 26 South Williams Street, and second floor of the bicycle shop.

- Addresses travel and the integration of interpretation and activities between Huffman Prairie Flying Field and its interpretive center at the Wright Memorial.
- Considers the most appropriate level of visitor facilities and visitor services at Huffman Prairie Flying Field.
- Acknowledges the increased security needs of the U.S. Air Force and provides an approach to accommodating park visitors within security constraints.

Dayton Aviation Heritage National Historical Park was established by Congress in 1992; however, new and/or rehabilitated facilities associated with each of the four designated park units were not completed and opened to the public until 2002 and 2003. During its first decade, the park recorded fewer than 50,000 visits per year. Approximately 100,000 visitors were recorded in 2003, the first year new and/or rehabilitated facilities were available at all four park units and the observance of the centennial of flight. Because of the recent completion of major park facilities and increased opportunities for the public to become aware of the park, visitation is expected to increase gradually to 300,000 to 400,000 people each year (Burgess & Niple, Limited 2002).

The mission, purpose, and significance of Dayton Aviation Heritage National Historical Park were defined in the park's general management plan (NPS 1997c). Those statements serve as cornerstones for all planning activities associated with this general management plan amendment. They are augmented by service-wide mandates and commitments that the National Park Service applies to all units under its administration. In addition, the park is operated to conform with provisions in its establishing legislation that define coordination between the Secretary of the Interior and the Secretary of Defense and provide for interpretation of Huffman Prairie Flying Field at the Wright Memorial.

Within Dayton Aviation Heritage National Historical Park, the National Park Service is the lead management agency only at The Wright Cycle Company complex. This, combined with the small size of the park (fewer than 90 acres in four locations), means that park resources are substantially affected by the actions of others. Therefore, achieving service-wide mandates and policies will require the National Park Service to coordinate closely with its legislated partners and with resource management and regulatory agencies throughout the area.

Specific resources and values, called impact topics, were used to focus the planning process and the assessment of potential consequences of the alternatives. The four criteria used to determine major resources and values at stake in the Dayton Aviation Heritage National Historical Park general management plan amendment process included:

- Resources cited in the establishing legislation for the park;
- Resources critical to maintaining the significance and character of the park;
- Resources recognized as important by laws or regulations; and
- Values of concern identified by the public during scoping for the general management plan amendment.

Based on these criteria, effects of the alternatives for management of the park were evaluated for the 15 impact topics that are identified under the heading "Affected Environment and Environmental Consequences."

ALTERNATIVES

The National Park Service, with input from its legislated partners, developed three alternatives for management of The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright

Memorial, based on outcomes. The alternatives are summarized below. Alternative C is the NPS' preferred alternative.

Alternative A – No Action / Continue Current Management

This alternative was included to conform with Council on Environmental Quality (1978) guidelines for implementing the National Environmental Policy Act that require the alternative of no action to be included in all environmental evaluations. Under this alternative, the National Park Service would continue to manage Dayton Aviation Heritage National Historical Park in accordance with the park's existing general management plan (NPS 1997c).

Key features of this alternative would include the following:

- Visitor facilities and activities, site access, and transportation between sites would remain the same as they are currently, and partnerships would continue in their present form.
- The National Park Service would continue to provide access and interpretation for a wide range of visitors, with a unique experience at each site. Most interpretation would occur within park buildings.
- Interpretation at Huffman Prairie Flying Field would remain as it is today, with the existing replica hangar, trail, and wayside exhibits. Restrooms and other services would continue to be provided at the Huffman Prairie Flying Field Interpretive Center at the Wright Memorial. Visitors would continue to gain access to Huffman Prairie Flying Field via Gate 16A.
- The National Park Service would continue to use the limited storage areas located in the basement of The Wright Cycle Company building, the vacant structure located at 26 South Williams Street, and space not designated for other purposes (but not designed for storage) in the basements of the Wright-Dunbar Interpretive Center and Aviation Trail Visitor Center and Museum. There would not be any designated space for maintenance activities requiring a workshop area with tools and equipment.

Alternative B

The desired future condition under Alternative B would be an enhanced experience for the traditional visitor to national parks. The target visitors would travel to the park from outside the near-park community, although many would be from Dayton and the surrounding area. Most visitors would be families (usually traveling by automobile) or tour groups. Visitors would expect an enjoyable, primarily contemplative experience that would increase their knowledge of history, literature, and/or aviation.

This alternative would acknowledge and better accommodate the changes that had occurred since preparation of the park's general management plan (NPS 1997c). In particular, it would take advantage of opportunities created by the construction of the Huffman Prairie Flying Field Interpretive Center at the Wright Memorial. It also would improve park operations at Huffman Prairie Flying Field and The Wright Cycle Company complex. Alternative B primarily would enhance interpretation and park operations by implementing the following measures:

- The park boundary would be enlarged at The Wright Cycle Company complex and a dedicated storage and maintenance facility would be constructed within the expanded boundary. Administrative and operations space for legislated park partners would be provided within The Wright Cycle Company complex boundaries.
- The National Park Service would better integrate the visitor experience at

Huffman Prairie Flying Field and the interpretive center at the Wright Memorial. This would be accomplished primarily by constructing a bridge over Ohio Highway 444 that would enable visitors to travel from the interpretive center to the flying field in about five minutes.

- Most visitors would leave their vehicles at the interpretive center and take a shuttle to the flying field. Therefore, the parking area at the Wright Memorial would be expanded. The existing fence would be moved to the south and the steam lines behind the interpretive center would be buried to avoid conflicts with a new road from the interpretive center to the bridge. This would increase the area available for parking and improve the site's aesthetics.
- A small hangar that would house the museum-quality replica of a Wright B Flyer. The replica Wright B Flyer would be built near Huffman Prairie Flying Field. This structure would allow the National Park Service to display the replica Wright B Flyer more frequently.

Alternative C

Alternative C would continue to serve traditional visitors to national parks. However, its primary goal would be to increase regional involvement, particularly in the interpretation, education, and outreach aspects of the park. Visitors would expect an active, participatory experience that would broaden and expand the park's literary and aviation significance.

Focused at The Wright Cycle Company complex, but inclusive of all park units, Dayton Aviation Heritage National Historical Park would become a vibrant part of the region, as well as the community. Many of the activities at this park unit would draw participants from the surrounding communities, neighborhoods, and schools. In addition to using private automobiles and public transit, participants often would arrive on foot, by bicycle, or in school buses and would consist of individuals or organized groups as well as families. Area residents, particularly children, would be inspired to excel in their studies and lives by learning about the literary and engineering achievements of their fellow west Dayton residents, Paul Laurence Dunbar and the Wright brothers.

In Alternative C, the National Park Service would actively involve as park partners many community agencies and organizations beyond the legislated partners. An important component of this alternative would be development of an agreement between Wright Dunbar, Inc. and Dayton Aviation Heritage National Historical Park for NPS use of all or part of the 20,000-square-foot Pekin Theater (the building adjacent to the Aviation Trail Visitor Center and Museum).

Alternative C would improve activities and coordination at the Huffman Prairie Flying Field Interpretive Center and the flying field. A new at-grade crossing of Ohio Highway 444 at Kauffman Avenue and use of Gate 18C to enter Wright-Patterson Air Force Base would enhance visitor movement between these two sites. Alternative C would enhance region and community involvement by implementing the following measures:

- The Pekin Theater would be rehabilitated by Wright Dunbar, Inc. The National Park Service would then enter into an agreement for the use of all or a part of the facility to support educational and interpretive programs. Wright-Dunbar Inc. and other partners might also coordinate use of the facility for compatible programming.
- The National Park Service would make its buildings and grounds avail-

able to local residents for community activities, increase technical assistance to legislated and non-legislated partners, and enter into cooperative agreements with community partners for specific projects. Administrative and operations space for park partners could be provided within The Wright Cycle Company complex boundaries or in the adjacent Pekin Theater building.

- The National Park Service would enter into an agreement with a partner organization for development and/or use of a maintenance and storage facility to serve park needs. This facility would be outside the park boundary, but would be close to The Wright Cycle Company complex.
- Motorized vehicle access between the Wright Memorial and Huffman Prairie Flying Field would be through Gate 18C via a new, at-grade crossing of Ohio Highway 444 at Kauffman Avenue and a new, 500-foot-long access road to Marl Road.
- Visitor facilities near Huffman Prairie Flying Field would include increased parking, a kiosk for expanded interpretation, and a hangar for the replica Wright B Flyer. Portable toilets would be available at the flying field except in the event of extended heavy rains (because this site is located within the ten-year retarding basin of Huffman Dam).
- The National Park Service would increase interpretation outside the existing building at the Wright Memorial. Parking at this site would be expanded to accommodate longer stays by visitors. Visual screening of the steam lines, perhaps with privacy fencing or vegetation, would improve the aesthetics at the Wright Memorial.

The Environmentally Preferred Alternative

The environmentally preferred alternative is defined as "the alternative that will best promote the national environmental policy expressed in the National Environmental Policy Act's Section 101." Ordinarily, this means the alternative that causes the least damage to the biological and physical environment. It also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.

Six criteria listed in Section 101(b) of the National Environmental Policy Act were used to help determine the environmentally preferred alternative. Based on these criteria, both action alternatives are environmentally preferred over Alternative A, which would continue current management. Alternative C has advantages over Alternative B based on five of the criteria and Alternative B does not have any advantages, based on the criteria, compared to Alternative C. Therefore, Alternative C, which is the NPS' preferred alternative, also is the environmentally preferred alternative.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The environmental impact statement portion of this general management plan amendment describes the affected natural, cultural, social, and economic environment in the vicinity of The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial in terms of 15 impact topics. The environmental consequences section describes the effects of each alternative on each impact topic. The impact topics included:

- Endangered, threatened, and other special status species and their habitats;
- Native vegetation, including ecologically critical areas or unique natural resources;
- Soils;
- Water quality and hydrology;

- Wetlands and floodplains;
- Wildlife and wildlife habitats, including aquatic life;
- Archeological resources;
- Historic structures and buildings;
- Cultural landscapes, including urban quality and design of the built environment;
- Economics and socioeconomics, including socially or economically disadvantaged populations;
- Land use plans, policies, or controls;
- Park and partner operations;
- Public health and safety;
- Transportation; and
- Visitor use and experience.

Determining environmental consequences included identifying the regulations and policies that were applicable to the impact topic and defining the methods that were used to conduct the analysis. This included defining relative terms such as "negligible" or "moderate" effects for the impact topic. The analysis was then performed for the park units and in a more regional context to determine cumulative impacts. Analyses involved comparing conditions that would occur with changes in management (Alternatives B and C, commonly called the action alternatives) to conditions that would occur if current management practices continued (Alternative A, the no action alternative). The results are presented in Table 5 on page 90 of the general management plan amendment and environmental impact statement. Key findings are summarized below.

Compared to the alternative to continue current management, Alternative B would have moderate to major, adverse effects on the eastern massasauga rattlesnake, a special concern species at the federal level; major, adverse effects on wetlands; and major, adverse effects on the ability to implement the Wright-Patterson Air Force Base endangered species management plan.

Alternative C could have a major adverse effect on levels of service for several traffic lanes at the intersection of Kauffman Avenue and Ohio Highway 444. In response, the Ohio Department of Transportation would implement mitigating actions that would reduce the intensity of the long-term, adverse effect on traffic to moderate. Major beneficial effects would be associated with the visitor programming and community outreach components of this alternative.

None of the alternatives would result in the impairment of a park resource or value whose conservation was:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

Cumulative impacts, which considered the environmental effects of each alternative for managing the park in conjunction with other past, present, and reasonably foreseeable future actions, were evaluated for each impact topic. While NPS actions may produce incremental changes, either beneficial or adverse, they were generally inconsequential compared to the effects that the urban development throughout the Dayton area has had on the biological, physical, and economic environment in the vicinity of Dayton Aviation Heritage National Historical Park.

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CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

This section defines the purposes of amending the general management plan for Dayton Aviation Heritage National Historical Park and explains why the general management plan amendment is needed. It includes planning direction and guidance, and identifies the issues and impact topics that were considered.

OVERVIEW OF PURPOSE AND NEED

A general management plan is the basic guidance document for decision making at a national park. It defines the park's mission and goals, defines desired future conditions, and establishes activities that are appropriate within various areas of the park. All other plans, such as strategic plans, resource management plans, and annual plans, implement the details needed to achieve the goals established in the general management plan. The planning lifetime for a general management plan is 15 to 20 years.

The general management plan for Dayton Aviation Heritage National Historical Park was completed in 1997 (NPS 1997c). At that time, the park had been in existence for fewer than five years. Since then, facilities, infrastructure, and site access that were only general concepts have been constructed and/or rehabilitated and put into operation. Additionally, the terrorist attacks of September 11, 2001 have resulted in heightened security issues and concerns associated with the operation of the Huffman Prairie Flying Field unit.

Despite these evolving conditions, most aspects of the 1997 plan still are valid and will remain in effect. The intent of the general management plan amendment process will be to evaluate changes and determine how best to incorporate them into the overall plan for park management.

Dayton Aviation Heritage National Historical Park is unusual in that it consists of four geographically separated units, each managed by a different legislated partner. The locations of these components are shown in the Park Units and Existing Conditions at The Wright Cycle Company Complex map (page 3).

- Ownership of The Wright Cycle Company complex in west Dayton is divided between Aviation Trail, Inc. and the National Park Service. Aviation Trail, Inc. owns the Aviation Trail Visitor Center and Museum and the National Park Service owns the remainder of the complex. The National Park Service leases the Aviation Trail Visitor Center and Museum from Aviation Trail, Inc. and provides overall management of the complex.
- The Paul Laurence Dunbar State Memorial, six blocks to the northwest of The Wright Cycle Company complex, is owned and managed by the Ohio Historical Society.
- The John W. Berry, Sr. Wright Brothers Aviation Center, located about two miles south of The Wright Cycle Company complex, is owned and managed by Carillon Historical Park.
- Huffman Prairie Flying Field and the Huffman Prairie Flying Field Interpretive Center, located within Wright-Patterson Air Force Base about eight miles northeast of The Wright Cycle Company complex, are owned by the U.S. Air Force and managed in partnership with the National Park Service.

The Paul Laurence Dunbar State Memorial and Carillon Historical Park have long protected nationally important historical resources and provided an enjoyable and educational visitor experience. Both continue to operate effectively within the framework of the park's 1997 general management plan. Therefore, facilities and operations at these units are outside the scope of this amendment.

Since 1997, The Wright Cycle Company complex has undergone significant development and growth, including realization of many of the goals and objectives outlined for the core unit in the park's general management plan, as follows:

- In 1998, development of the Wright-Dunbar Plaza, located between The Wright Cycle Company building and the Hoover Block, was completed.
- In 2000, the boundaries of The Wright Cycle Company complex were expanded to include the Setzer Building property and the residential structures located at 26 and 30 South Williams Street. The building at 30 South Williams Street was then rehabilitated by the city of Dayton and now serves as park headquarters.
- In 2002, ownership of 26 and 30 South Williams Street was transferred from the city of Dayton to the National Park Service.
- In 2003, rehabilitations of the Hoover Block and Setzer Building were completed with the opening of the Wright-Dunbar Interpretive Center and the Aviation Trail Visitor Center and Museum.
- In 2004, the interior of The Wright Cycle Company building was rehabilitated and permanent exhibits were installed.

The development of The Wright Cycle Company complex combined with the expansion of the unit boundaries in 2000 resulted in the identification of potential opportunities to better fulfill the park's mission and improve operations.

The 1997 general management plan acknowledged that Huffman Prairie Flying Field was within the Mad River floodplain and recommended that the interpretive center for the eastern part of the park be built "near Wright Brothers Hill."[1.] Accordingly, the Huffman Prairie Flying Field Interpretive Center, which opened in 2002, was built on U.S. Air Force property just south of the formal monument at the Wright Memorial outside the national park boundary. The travel time between the flying field and its interpretive center and the circuitous route between the two sites pose challenges to site interpretation and visitor wayfinding. Moreover, increased security requirements by the U.S. Air Force to protect Wright-Patterson Air Force Base against terrorist threats must be accommodated.

The park's establishing legislation and the 1997 general management plan recognized that community partnerships are essential to the success of Dayton Aviation Heritage National Historical Park. Currently, the park units are run by five legislated partners, including:

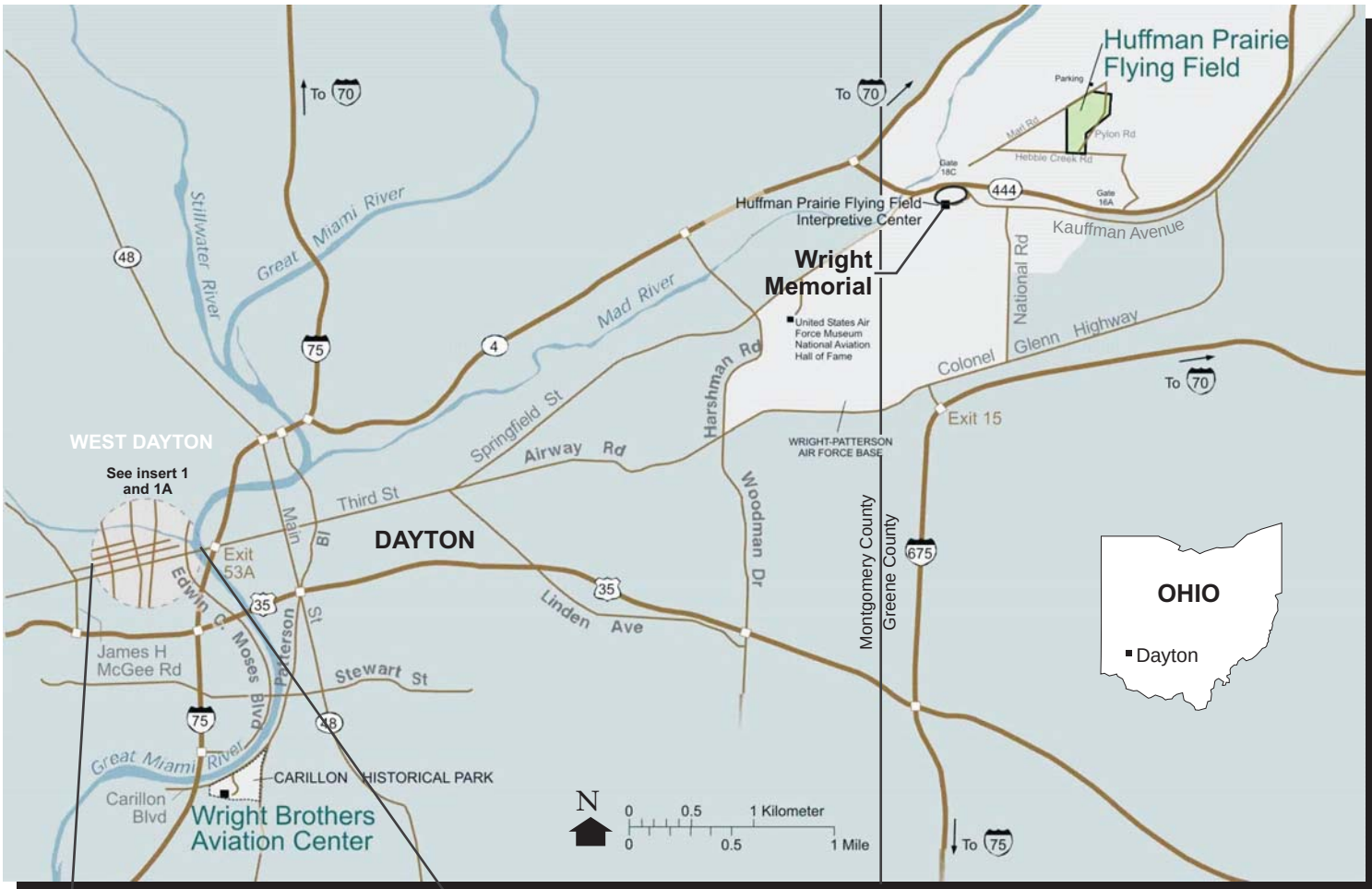
- The National Park Service;
- The Ohio Historical Society;
- The U.S. Air Force;
- Carillon Historical Park; and
- Aviation Trail, Inc.

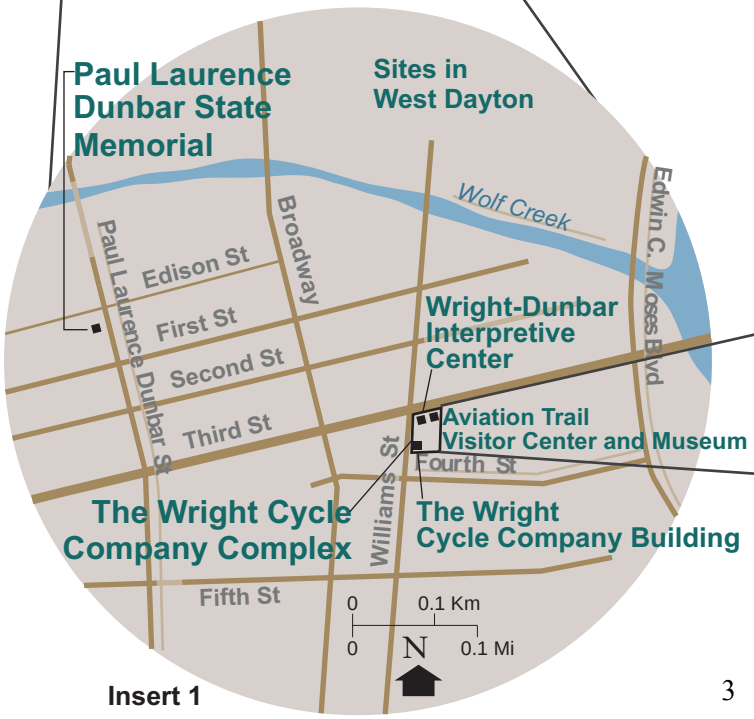
Other opportunities for partnering have evolved, and guidance is needed on the best approaches for future partnering.

[1.] Wright Brothers Hill" was the name approved for the 27-acre park surrounding the formal monument by the directors of the Wilbur and Orville Wright Memorial Commission on October 7, 1938. However, the park is commonly known as the Wright Memorial and this convention will be followed in this document. The term "Wright Brothers Hill" will be used only in connection with the congressional legislation or to identify the topographic feature of the same name on which the park is located.

Dayton Aviation Heritage National Historical Park
Park Units and Existing Conditions at The Wright Cycle Company Complex

National Park Service
U.S. Department of the Interior
Ohio
November 2005





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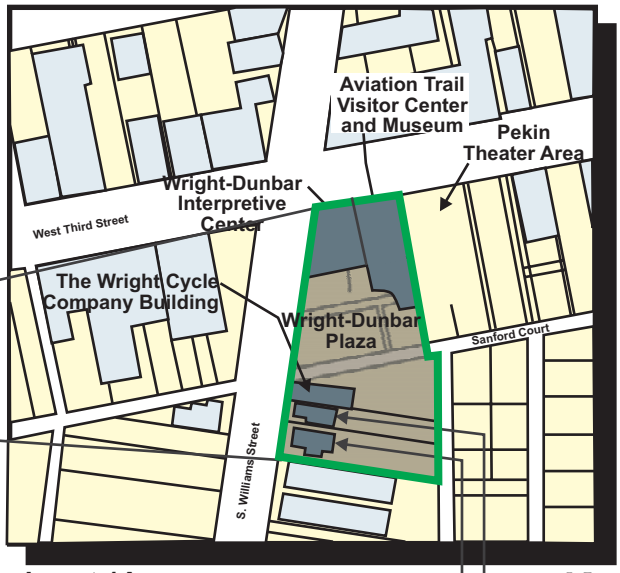

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PURPOSE OF THE GENERAL MANAGEMENT PLAN AMENDMENT

According to National Park Service guidance, the purpose of general management planning is to specify resource conditions and visitor experiences to be achieved and to provide the basic foundation for decision making. As part of this process, this general management plan amendment reiterates what was established in the park's 1997 general management plan, including the area's significance and what the National Park Service wants to see accomplished with regard to the visitor experience and natural and cultural resources. It reaffirms the agreement or contract with the public on how the park will be used and managed, and amplifies or amends that agreement to address changed conditions.

Page 14 of the existing general management plan (NPS 1997c) identified the purpose and goals of general management planning for Dayton Aviation Heritage National Historical Park. The following text is excerpted from that document. While the final statement is out of date, the other purposes and goals remain relevant and continue to establish the framework within which this amendment was considered.

The primary focus of this *General Management Plan* is to tell the story of aviation, the Wright brothers, and their business client, poet/author Paul Laurence Dunbar. The plan will

- Provide a framework to accomplish legislative objectives
- Identify and involve appropriate constituencies for consensus on major decisions
- Recommend ways to protect significant resources
- Relate development to preservation and interpretation needs
- Identify the park audiences and determine how best to communicate major messages
- Prepare the groundwork for drafting cooperative agreements with appropriate agencies and organizations to ensure preservation and interpretation of the park and its stories

This *General Management Plan* represents the combined efforts of the National Park Service, the park's legislated partners, its legislatively established advisory commission, the state of Ohio, the city of Dayton, and other interested agencies, organizations, and individuals throughout the country who have shown interest in the future of the park.

Through review of legislation and discussion with partners, the Park Service defined the following goals for this planning effort:

- Establish an NPS presence that will emphasize the national significance of Dayton's aviation heritage, as originated by the Wright brothers, and the legacy of Paul Laurence Dunbar.
- Define with the partners and public a common vision for the future to guide park development and foster public understanding of the park's purposes.
- Develop an interpretive framework, in conjunction with the partners, to provide coordination and direction for interpretive activities for the next few years.
- Guide the development of the core unit and building treatments for the Hoover Block and The Wright Cycle Company building.
- Provide design and planning technical assistance to ensure that specific

construction projects and planning efforts benefit from NPS expertise, such as interpretation, and that NPS needs are fully considered.

- Provide a framework for the park's visitor activities during the 2003 Centennial of Flight celebration.

Within the purposes and goals of the general management plan, this amendment focuses on visitor experience, facility use, partnerships with the community, and connections, both travel and interpretive, between the Huffman Prairie Flying Field Interpretive Center at the Wright Memorial and the flying field. This amendment will be considered successful if it meets the following objectives:

- Addresses current opportunities for community partnerships and considers possibilities for future partnering.
- Addresses the need for a maintenance and storage facility at or near The Wright Cycle Company complex.
- Considers the need for boundary expansion at The Wright Cycle Company complex.
- Provides a management strategy for unused or underutilized areas at The Wright Cycle Company complex, including the backyards, vacant house at 26 South Williams Street, and second floor of The Wright Cycle Company building.
- Addresses travel and the integration of interpretation and activities between Huffman Prairie Flying Field and its interpretive center at the Wright Memorial.
- Considers the most appropriate level of visitor facilities and visitor services at Huffman Prairie Flying Field.
- Acknowledges the increased security needs of the U.S. Air Force and provides an approach to accommodating park visitors within security constraints.

The National Park Service views the public as an integral partner in amending the general management plan for Dayton Aviation Heritage National Historical Park. Measures taken by the National Park Service to include public comments in updating the park's general management plan via this amendment include:

- Soliciting public participation in the planning process and incorporating suggestions from the public into the park management alternatives;
- Performing public scoping to identify important impact topics and evaluating the effects of the alternatives to those impact topics in the draft environmental impact statement;
- Keeping the public informed on projects through a series of newsletters; and
- Inviting the public to comment on this draft general management plan amendment and environmental impact statement and using that input in the preparation of the final general management plan amendment.

The general management plan amendment does not propose specific actions or describe how particular programs or projects should be implemented. Those decisions will be addressed during the more detailed planning associated with strategic plans, annual performance plans, and implementation plans. All of those plans will derive from the goals, future conditions, and appropriate types of activities established in the 1997 general management plan and this amendment. As part of that decision-making process, project-specific National Environmental Policy Act documents would be prepared.

NEED FOR THE GENERAL MANAGEMENT PLAN AMENDMENT

PARK HISTORY AND USE RELATIVE TO MANAGEMENT PLANNING

The history of Dayton Aviation Heritage National Historical Park is provided in the general management plan (NPS 1997c). The "Background" section of that document provides information, not repeated here, on:

- The establishment of the national park;
- Park partners, including the five legislated partners listed earlier in this section and the need to involve other partners throughout Dayton and the state of Ohio;
- The historical importance of the Wright brothers and Paul Laurence Dunbar; and
- The resources of the park as they existed in 1997.

In 2000, Congress passed Public Law 106-356, the Dayton Aviation Heritage Preservation Amendments Act. This act expanded the park boundary to improve park functions. The intent stated by Congress was to "clarify the areas included in the Dayton Aviation Heritage National Historical Park and to authorize appropriations for that park." A copy of this legislation is provided in Appendix A.

Also since publication of the general management plan, major capital improvements have been made throughout the park and nearby areas that affect its management.

The park features that would be affected by this general management plan amendment are described below.[2.] Their locations are shown on the maps entitled Park Units and Existing Conditions at The Wright Cycle Company Complex (page 3) and Existing Conditions at Huffman Prairie Flying Field and Wright Memorial (page 9).

The Wright Cycle Company Complex

The Wright Cycle Company Building. This two-story, red-brick building at 22 South Williams Street was the location of The Wright Cycle Company business from 1895 to 1897. Over time, the building was used by many other enterprises and recognition of its association with the Wright brothers was forgotten. It eventually fell into disrepair and had been condemned by a Dayton building inspector when, in 1981, research by Aviation Trail, Inc. revealed its association with the Wright brothers.

Aviation Trail, Inc. purchased and rehabilitated the structure, installed interpretive displays, and opened it to the public in 1988. Ownership of the property was transferred to the National Park Service in 1995, three years after Dayton Aviation Heritage National Historical Park was established. In 2004, the interior of The Wright Cycle Company building was rehabilitated and permanent exhibits were installed.

The Wright-Dunbar Interpretive Center (Hoover Block) and Aviation Trail Visitor Center and Museum (Setzer Building). This facility consists of two adjacent, connected buildings:

2. Note on attribution: Lawrence Blake, the park superintendent, was the primary source of the information in this section. He also provided data presented throughout this document, including (but not limited to) park history, facilities, partnerships, future plans, operations, and visitor experience. Information was conveyed to the writing team during two multi-day workshops and numerous meetings, phone calls, e-mails, and document reviews that started in July 2002 and extended to the final document publication. It was impractical to attribute information in this document to Mr. Blake, since most pages in the sections on purpose/need and alternatives, and many pages in the subsequent sections, would contain multiple references to Blake 2002, 2003, and/or 2004.

- The Hoover Block, located at the corner of West Third Street and South Williams Street, was built in 1890. For five years (1890-1895) it was the location of the Wright brothers' first joint enterprise, Wright and Wright Printing.
- The Setzer Building, east of the Hoover Block, was constructed in 1906 (Gannon 1987). This structure does not have a known connection to the Wright brothers, Paul Laurence Dunbar, or the invention of flight, but is identified as a contributing structure to the West Third Street National Register Historic District

By the time the national park was established about a century after the buildings were constructed, both structures had fallen into disrepair. When the general management plan was published in 1997, the National Park Service had just acquired title to the Hoover Block. The National Park Service, following expansion of the park boundary in 2000 (see Appendix A), entered into a partnership with Aviation Trail, Inc. that provided for the joint development of the two structures by the National Park Service to serve as a combined visitor services facility for both organizations – the Wright-Dunbar Interpretive Center and the Aviation Trail Visitor Center and Museum – with the National Park Service responsible for the day-to-day management and operation of the combined facility.

Prior to the start of the joint development project, Aviation Trail, Inc. had demolished a portion of the Setzer building that was collapsing and had constructed the outer shell of the new building. The National Park Service completed the build-out of the Aviation Trail Visitor Center and Museum and the rehabilitation of the Wright-Dunbar Interpretive Center. The combined visitor facilities opened to the public in June 2003.

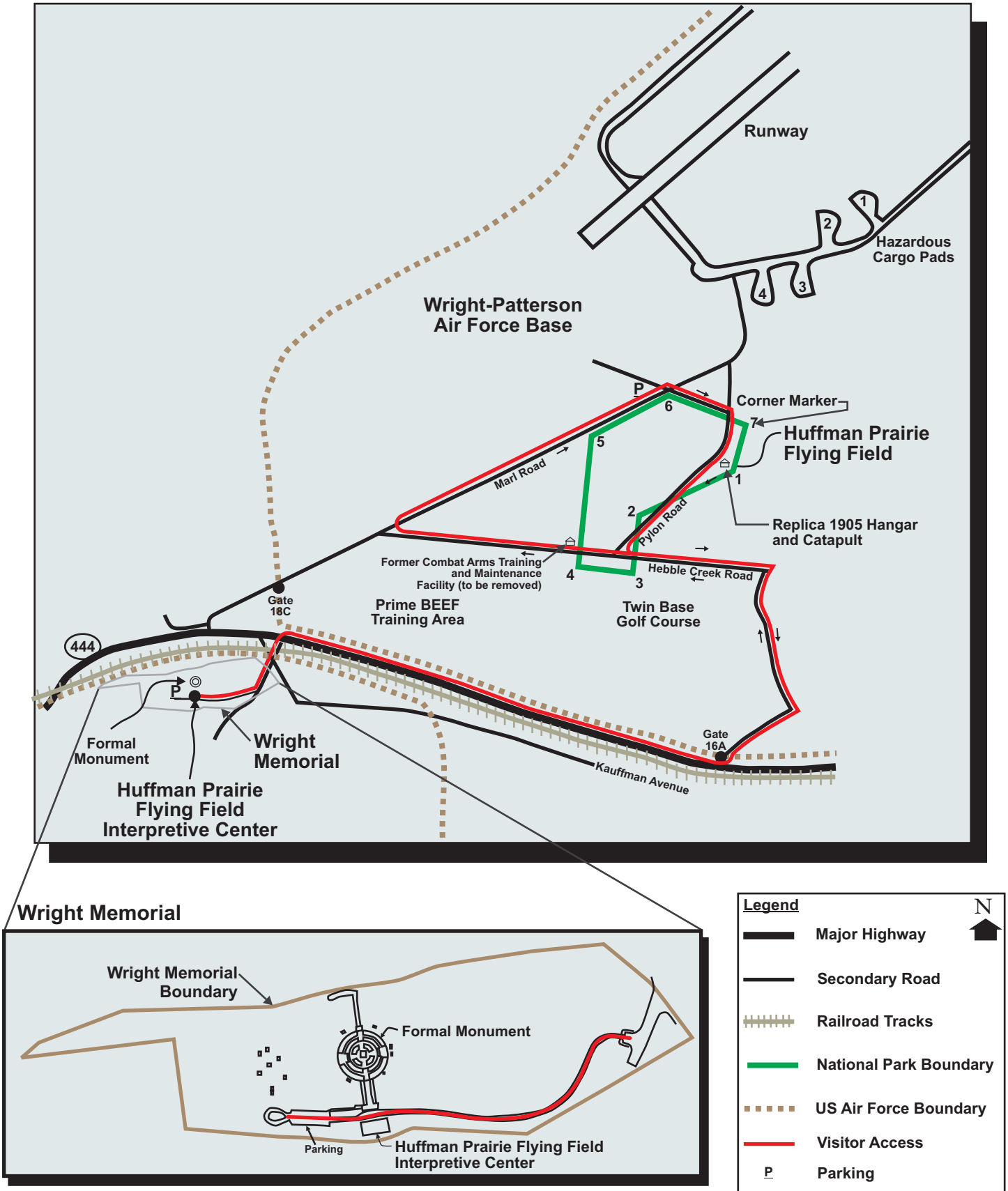
The combined Wright-Dunbar Interpretive Center and Aviation Trail Visitor Center and Museum contains about 29,000 square feet on three floors and a basement and includes the following:

- The first floor includes the entryway, lobby area where visitors can receive orientation information, a 71-seat theater, and exhibits relating to all four units of the park.
- The second floor contains a reconstruction of the Wright brothers' 1890 to 1895 print shop, exhibits related to the story of the Wright brothers' printing business, a mini-theater featuring an orientation film on Paul Laurence Dunbar, the Aviation Trail Dave Gold Parachute Museum, a classroom, and office space.
- The third floor is used for offices, the park library and archives, collection storage, and the mechanical room.
- The basement houses mechanical systems and collections storage for Aviation Trail, Inc.

26 and 30 South Williams Street. The residential structures at 26 and 30 South Williams Street were constructed around 1900 and are identified as contributing structures to the West Third Street National Register Historic District. Following the expansion of the park boundary in 2000 to include these properties, ownership of the structures was transferred from the city of Dayton to the National Park Service. Prior to transferring ownership, the city of Dayton rehabilitated the building at 30 South Williams Street, which now serves as the headquarters office for the park. The building at 26 South Williams Street remains vacant and is awaiting completion of a historic structures report, to be followed by rehabilitation.

Dayton Aviation Heritage National Historical Park
Existing Conditions at Huffman Prairie Flying Field and The Wright Memorial

National Park Service
U.S. Department of the Interior
Ohio
November 2005



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Huffman Prairie Flying Field Vicinity

Huffman Prairie Flying Field. At the time of general management plan preparation, the flying field was accessed by Gate 12A, a manned checkpoint that provides entry into Areas A and C of Wright-Patterson Air Force Base. Since then, the U.S. Air Force fenced off the area that includes Huffman Prairie Flying Field and upgraded Gate 16A to serve as an unmanned entry point. As a result, visitors can access the flying field without having to go through base security.

The U.S. Air Force constructed a 25-vehicle parking lot north of the flying field and an Americans with Disabilities Act-compliant pedestrian bridge over Trout Creek from the parking lot to the flying field. Rehabilitation of the landscape to a condition more similar to the Wright brothers' era has been accomplished through reconstruction of the historic road and fencing. Directional signage was installed to assist visitors in wayfinding between Gate 16A and the flying field parking lot.

Two shooting ranges are located near Huffman Prairie Flying Field. These include the Rod and Gun Club's recreational trap and skeet range and the mission-critical Combat Arms Training and Maintenance facility, which is used by Air Force security forces and other military personnel for training.

- The U.S. Air Force has completed construction of a new Combat Arms Training and Maintenance facility. In 2005, the U.S. Air Force will remove and mitigate the site of the former Combat Arms Training and Maintenance facility, located near Huffman Prairie Flying Field corner marker 4.
- Use of the Rod and Gun Club's trap and skeet range is regulated through a memorandum of agreement between the U.S. Air Force and National Park Service for the operation of park facilities on Air Force property. Activities are scheduled so that the shooting range and flying field are not open at the same time.

Interpretive exhibits have been installed at Huffman Prairie Flying Field. These include an Americans with Disabilities Act-compliant trail with interpretive wayside exhibits, stone walls at the seven corners of the irregularly shaped flying field, a replica catapult-and-rail launch system, and exhibits inside the replica hangar.

Huffman Prairie Flying Field Interpretive Center. Consistent with the general management plan (NPS 1997c), the interpretive center for Huffman Prairie Flying Field was built at the Wright Memorial, just south of the formal monument. This facility is on U.S. Air Force-owned property outside the national park boundary. This building provides orientation to all park units, but the exhibits emphasize Huffman Prairie Flying Field, Wright-Patterson Air Force Base, and the invention and development of flight. In addition to exhibit space, the building includes a 60-seat auditorium, a bookstore, and a small administrative area. A paved lot east of the building provides parking for 46 vehicles. The park access road was repaved and upgraded with wider shoulders when the parking lot was expanded.

Wright Memorial. The Wright Memorial is not within the boundaries of the national park. However, this area of Wright-Patterson Air Force Base hosts the Huffman Prairie Flying Field Interpretive Center (see park legislation, Appendix A). In 1998, the U.S. Air Force restored the memorial with the assistance of the NPS' Denver Service Center, Midwest Regional Office Cultural Resources Division, and Olmsted Center for Landscape Preservation. Throughout the grounds, the bluestone pavers were replaced, walls were repointed, and capstones were replaced, as

needed. Four wayside exhibits were installed to provide interpretation.

GEOGRAPHIC AREA COVERED BY THE GENERAL MANAGEMENT PLAN AMENDMENT

As shown in the Park Units and Existing Conditions at The Wright Cycle Company Complex map (page 3), Dayton Aviation Heritage National Historical Park consists of four geographically separated units. The Wright Cycle Company complex (0.9 acres) and Huffman Prairie Flying Field (84.4 acres) are within the geographic area covered by this general management plan amendment. The Paul Laurence Dunbar State Memorial and John W. Berry, Sr. Wright Brothers Aviation Center at Carillon Historical Park are not included in the geographic area covered by this general management plan amendment

Several areas outside the park boundaries are considered in this general management plan amendment, based on their potential to be affected by one or more of the alternatives. They include:

- The 27-acre Wright Memorial, plus a corridor about 100 yards wide south of the interpretive center, which could be used in some alternatives for a roadway alignment and/or the siting of future facilities, such as additional parking.
- Lands along the potential transportation corridors between Huffman Prairie Flying Field and the Wright Memorial. These include the lands on both sides of two proposed roadway-and-bridge alignments and the lands from the intersection of Kauffman Avenue and Ohio Highway 444 north and east to Marl Road.
- Lands near Huffman Prairie Flying Field. These include lands along and between the parallel alignments of Marl Road and the Dayton, Springfield, and Urbana Interurban Rail Line north of Ohio Highway 444; the site of the former Simms Station platform and the area about 100 yards to the west where a replica of the platform has been built; and a corridor of about 100 yards around the flying field, which could be used for the siting of future facilities such as a visitor kiosk or additional parking.
- The Pekin Theater and Fish Market area adjacent to the Aviation Trail Visitor Center and Museum, which could be used by the National Park Service to support activities at The Wright Cycle Company complex.
- The site of a storage and maintenance facility to meet NPS and partner requirements. This facility could be located at an unspecified site in west Dayton near The Wright Cycle Company complex but outside the park boundary.

The following areas are *not* included in this general management plan amendment:

- The Paul Laurence Dunbar State Memorial and the John W. Berry, Sr., Wright Brothers Aviation Center at Carillon Historical Park. These park units will continue to be managed in conformance with the park's 1997 general management plan.
- Other areas of Carillon Historical Park.
- West Dayton properties owned by the city of Dayton, Wright Dunbar, Inc., and other entities outside the boundaries of The Wright Cycle Company complex and the Paul Laurence Dunbar State Memorial, excluding the Pekin Theater and the Fish Market property.
- Parking areas near The Wright Cycle Company complex and Paul Laurence Dunbar State Memorial, including

those that will provide parking for park facilities. Parking was addressed in the 1997 general management plan, and new parking lots are currently scheduled to be completed in late 2004 through a partnership between the National Park Service, Wright Dunbar, Inc, the city of Dayton, and the Greater Dayton Regional Transit Authority.

- Private lands, including commercial and residential properties, near the park units.
- The National Museum of the U.S. Air Force.
- Other sites associated with the development of aviation, such as Wright-Patterson Air Force Base (except for areas associated with Huffman Prairie Flying Field), The Wright Company factory, the Aviation Trail (except for Aviation Trail sites associated with Huffman Prairie Flying Field and The Wright Cycle Company complex), and sites associated with the national aviation heritage area. In accordance with the 1992 legislation that established the park, some of these areas were investigated and determined not to constitute suitable additions to the national park system or, in some limited cases, inclusion in the national park system was determined not to be feasible at that time. A copy of the suitability and feasibility study was included in Appendix A of the park's general management plan (NPS 1997c).

PLANNING DIRECTION OR GUIDANCE

This section defines the basis for any actions taken at Dayton Aviation Heritage National Historical Park. Guidance and direction include the purpose and significance of the park, the goals of the National Park Service for the park, any park-specific mandates and administrative commitments, and service-wide mandates and commitments that the National Park Service applies to all units under its administration.

Core Goals and Objectives

This section describes the legislatively established missions of Dayton Aviation Heritage National Historical Park. It defines why the park was created and why it is special. These are the fundamental criteria against which the appropriateness of all general management plan amendment recommendations, operational decisions, and actions are tested.

Park Mission: Dayton Aviation Heritage National Historical Park was established in 1992 by Public Law 102-419. A copy of the establishing legislation in provided in Appendix A. The mission, purposes, and significance of Dayton Aviation Heritage National Historical Park all derive directly from its establishing legislation.

The park mission is expressed in the general management plan (NPS 1997c) under the heading "Vision for Dayton Aviation Heritage National Historical Park." The park mission from the general management plan is repeated below.

Dayton, Ohio, will be known as the birthplace of aviation. Visitors to Dayton Aviation Heritage National Historical Park will see how the invention of the airplane influenced the course of human history, how aviation, science, and engineering evolved, and how new technologies derived from it continue to shape American lives. As part of the Dayton experience, the park will educate the public about the lives and work of three uncommon men whose lofty goals were achieved through intelligent effort and persistence.

The park will be a focal point for information on the Wright brothers, who made the world's first, free, controlled, and sustained

flight in a power-driven, heavier-than-air machine. The park will relate the story of acclaimed author/poet Paul Laurence Dunbar. The park also will be a catalyst, attracting other aviation-related entities to the area in a way that increases visitors' opportunities to learn about aviation heritage. Despite the physical distance between resources, visitors will experience the park and its stories as a unified interpretive framework. Local and regional communities will feel a sense of stewardship for the significant sites and objects associated with the lives of the Wright brothers and Paul Laurence Dunbar.

The park will cooperate with legislated partners and other entities for management, interpretation, transportation, research, stewardship, and facility development for sites in and outside the park boundaries. Visitors will have the opportunity to experience different sites in a variety of ways. Interpretation will stimulate visitors' interest in learning more about the primary stories, as well as about the history of Dayton and the natural history of the area.

The park will be an integral part of the community. Although changes may occur in the neighborhood surrounding the core unit and other sites, visual qualities will continue to contribute to the historical context of the park. The residents in the neighborhood surrounding the core unit will find that the park brings improvements that help the community to achieve its goals.

The Paul Laurence Dunbar State Memorial, a National Historic Landmark, will focus on information about Dayton writers and will serve as a center for promoting creative writing. At the Dunbar House, visitors will learn about the life and literary works of Paul Laurence Dunbar as the first African-American writer to gain acceptance among national and international literary critics. His legacy will inspire visitors to learn more about African-American history and literature.

Park Purposes: The purpose of Dayton Aviation Heritage National Historical Park was established in the general management plan based on a study of legislation, discussions at workshops with partners, and comments from the public. The purpose reflects the congressional intent for establishing the park. The purpose statement from the general management plan (NPS 1997c) is repeated below.

The purpose of Dayton Aviation Heritage National Historical Park is to

- Commemorate the legacy of three exceptional men – Wilbur Wright, Orville Wright, and Paul Laurence Dunbar – and their lives and works in the Miami Valley
- Recognize the national significance of the contributions made by Paul Laurence Dunbar and the Wright brothers and the city of Dayton's role in their contributions
- Promote the preservation and interpretation of resources related to the lives of these three men and the invention of flight through the management framework based on cooperation among the diverse groups that share an interest in aviation history and Paul Laurence Dunbar.

Park Significance: Five statements of the park's significance are included in the general management plan and are repeated here.

Dayton Aviation Heritage National Historical Park is significant because

- It is situated in the neighborhood where the Wright brothers first became interested in and investigated the basic principles of flight.
- It contains the only existing original buildings at their original locations and resources associated with the

Wright printing and bicycle businesses.

- It is the place where the world's first successful, heavier-than-air, power-driven, and controlled airplane was designed and built.
- It contains the world's first practical airplane and the first flying school.
- It contains the home of renowned African-American author/poet Paul Laurence Dunbar.

NPS Mission Goals

This section defines in broad terms the ideals that the National Park Service is striving to attain, as they apply to Dayton Aviation Heritage National Historical Park.

Park mission goals articulate the broad ideals and vision that the National Park Service is trying to achieve at Dayton Aviation Heritage National Historical Park. The goals for the park are directly linked to the NPS service-wide mission goals contained in the *National Park Service Strategic Plan* (NPS 2000b). They are written as desired outcomes in keeping with the Government Performance and Results Act (GPRA). Mission goals for Dayton Aviation Heritage National Historical Park are as follows:

- The natural and cultural resources and associated values of Dayton Aviation Heritage National Historical Park are protected, restored, and maintained in good condition and managed within their broader ecosystem and cultural context (NPS Mission Goal Ia).
- The National Park Service contributes to knowledge about natural and cultural resources and values; management decisions about resources and visitors at Dayton Aviation Heritage National Historical Park are based in adequate scholarly and scientific information (NPS Mission Goal Ib).
- Visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities (NPS Mission Goal IIa).
- Park visitors and the general public understand and appreciate the preservation of the park and its resources for this and future generations (NPS Mission Goal IIb).
- The natural and cultural resources of Dayton Aviation Heritage National Historical Park are conserved through formal partnership programs (NPS Mission Goal IIIa).
- Through partnerships with other federal, state, and local agencies and nonprofit organizations, Dayton Aviation Heritage National Historical Park contributes to a nationwide system of parks, open spaces, rivers, and trails and provides educational, recreational, and conservation benefits for the American people (NPS Mission Goal IIIb).
- The National Park Service uses current management practices, systems, and technologies to accomplish its mission at Dayton Aviation Heritage National Historical Park (NPS Mission Goal IVa).
- The National Park Service increases its managerial capabilities through initiatives and support from other agencies, organizations, and individuals (NPS Mission Goal IVb).

Special Mandates and Administrative Commitments

Special mandates and administrative commitments refer to park-specific requirements. These formal agreements often are established concurrently with the creation of a park.

As described in the general management plan (NPS 1997c), Congress established Dayton Aviation Heritage National Historical Park in 1992 (Public Law 102-419) as a public-private partnership with four management partners. They include:

- The National Park Service;
- The Ohio Historical Society;
- Wright-Patterson Air Force Base and the U.S. Air Force; and
- Carillon Historical Park.

The 2000 legislation that expanded the park boundaries at two of the units also added Aviation Trail, Inc. to the list of management partners for Dayton Aviation Heritage National Historical Park.

Sections 105 and 107 specifically address interactions between the Department of the Interior, National Park Service and the U.S. Department of Defense, U.S. Air Force. Applicable text includes the following:

- SECTION 105(e) INTERPRETATION OF HUFFMAN PRAIRIE FLYING FIELD. The Secretary [of the Interior] may provide interpretation of Huffman Prairie Flying Field on Wright Brothers Hill, Wright-Patterson Air Force Base, Ohio.
- SECTION 107. COORDINATION BETWEEN THE SECRETARY [OF THE INTERIOR] AND THE SECRETARY OF DEFENSE. The decisions concerning the execution of this Act as it applies to properties under control of the Secretary of Defense shall be made by such Secretary, in consultation with the Secretary of [the] Interior.

The park's general management plan (NPS 1997c) defined the relationship between the National Park Service and Wright-Patterson Air Force Base. It recommended a partnership approach to management and operation of Huffman Prairie Flying Field.

Wright Brothers Hill, which is referred to in Section 105(e) of the establishing legislation, is outside the national park boundary, but within Wright-Patterson Air Force Base. The National Park Service and U.S. Air Force developed a memorandum of agreement, which provides guidance for the management and operation of the Huffman Prairie Flying Field Interpretive Center and Huffman Prairie Flying Field. This document is renegotiated on a scheduled basis.

Service-Wide Mandates and Policies

This section identifies what must be done at Dayton Aviation Heritage National Historical Park to comply with federal laws and with the policies of the National Park Service. These are measures that the National Park Service must endeavor to meet, regardless of the alternative selected for the long-term management of the park.

As with all NPS units, management of Dayton Aviation Heritage National Historical Park is guided by numerous congressional acts and executive orders, in addition to the park's establishing and subsequent legislation. Many of the laws and executive orders that guide park management, with their legal citations, are identified in Appendix B. Some of these laws and executive orders are applicable primarily to units of the national park system. These include the 1916 Organic Act that created the National Park Service, the General Authorities Act of 1970, and the act of March 27, 1978 relating to the management of the national park system. Others have broader application, such as the Endangered Species Act, the National Historic Preservation Act, and Executive Order 11990 addressing the protection of wetlands.

The 1916 Organic Act contains a key management-related provision against which all proposed actions in national parks are

evaluated. Referring to national parks, it states that the purpose of the National Park Service "is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations."

This prohibition against impairment is the cornerstone of the Organic Act and establishes the primary responsibility of the National Park Service (NPS 2000a). As a result, the environmental impact statement for this general management plan amendment includes a separate analysis of impairment for every impact topic associated with "the scenery and the natural and historic objects and the wild life therein" and that relates to providing "for the enjoyment of the same."

The National Park Service also has established policies for all units under its stewardship. These are identified and explained in the NPS guidance manual entitled *Management Policies 2001* (NPS 2000a). Components of these policies that relate to Dayton Aviation Heritage National Historical Park include land protection, management of natural and cultural resources, interpretation and education, use of the parks, and park facilities.

Desired future conditions prescribed by service-wide mandates and policies that are relevant to the management of Dayton Aviation Heritage National Historical Park are summarized under the heading "Regulations and Policies" for each impact topic in the "Environmental Consequences" section of this document. Regardless of the alternative selected, the NPS will endeavor to implement these service-wide mandates and policies. For example, under any of the alternatives, the National Park Service will strive to protect endangered species, control invasive species, improve water quality, protect archeological sites, preserve historic structures, and provide access for citizens with disabilities.

Within Dayton Aviation Heritage National Historical Park, the National Park Service is the lead management agency only at The Wright Cycle Company complex. This, combined with the small size of the park (fewer than 90 acres in four locations), means that park resources are substantially affected by the actions of others. Therefore, achieving service-wide mandates and policies will require the National Park Service to coordinate closely with its legislated partners and with resource management and regulatory agencies throughout the area.

Dayton Aviation Heritage National Historical Park is unusual in that part of the park is on an active military installation (Wright-Patterson Air Force Base). Although the U.S. Air Force must comply with environmental laws, its primary mandate is national defense. In implementing management actions on this military property, the National Park Service will work with the U.S. Air Force to ensure that the defense mission is not adversely affected while scenic, natural, and cultural resources are protected from impairment, consistent with the Organic Act.

PLANNING OPPORTUNITIES AND ISSUES

The previous section summarized major legal and policy requirements for Dayton Aviation Heritage National Historical Park. This section summarizes the resources and other values that are at stake (impact topics) in the general management plan amendment process and identifies connected, cumulative, and similar actions that were considered in the planning process.

Impact Topics: Resources and Values at Stake in the Planning Process

This section identifies the resources and values (impact topics) that were considered in the planning process. It also identifies the criteria used to establish the relevance of each impact topic to long-term planning for Dayton Aviation Heritage National Historical Park.

Specific resources and values, called impact topics, were used to focus the planning process and the assessment of potential consequences of the alternatives. The following four criteria were used to determine major resources and values at stake in the Dayton Aviation Heritage National Historical Park general management plan amendment process:

- Resources cited in the establishing legislation for the park. The establishing legislation for the Dayton Aviation Heritage National Historical Park is provided in Appendix A. The relevant elements of the legislation are incorporated in the general management plan's "Park Mission" and "Park Purpose" statements provided earlier in this section.
- Resources critical to maintaining the significance and character of the park. The significance statements from the general management plan (NPS 1997c) provided earlier in this section describe the defining features of Dayton Aviation Heritage National Historical Park that were used to establish the resources critical to maintaining the park's significance and character.
- Resources recognized as important by laws or regulations. A list of many of the important congressional acts and executive orders that guide the management of all NPS facilities, including this park, is provided in Appendix B. The relevant elements of these acts and orders are provided under the heading "Regulations and Policies" for each impact topic in the "Environmental Consequences" section of this document.
- Values of concern to the public during scoping for the general management plan amendment. The National Park Service and U.S. Air Force conducted a public information and scoping program to acquire input from the public and from other agencies. This helped the National Park Service develop alternatives and identify resources and values of high interest in the park.

Table 1 shows the criteria that helped establish each impact topic as a resource or value at stake in the general management plan amendment planning process. More detailed descriptions of each impact topic that serve as the basis for determining the effects of each of the management alternatives are described in the "Affected Environment" section. The analysis of effects is presented in the "Environmental Consequences" section.

TABLE 1: CRITERIA USED TO ESTABLISH IMPACT TOPICS

Impact Topic	Cited in Establishing Legislation	Critical to Park Significance and Character	Recognized by Laws or Regulations	Cited during Scoping
Biological and physical resources				
Endangered, threatened, and other special status species and their habitats			X	X
Native vegetation, including ecologically critical areas or unique natural resources			X	X
Soils				X
Water quality and hydrology			X	X
Wetlands and floodplains			X	X
Wildlife and wildlife habitats, including aquatic life				X
Cultural resources				
Archeological resources			X	X
Historic structures and buildings	X	X	X	X
Cultural landscapes, including urban quality and design of the built environment	X	X	X	X
Social and economic considerations				
Economics and socioeconomics, including socially or economically disadvantaged populations			X	X
Land use plans, policies, or controls			X	X
Park and partner operations				X
Public health and safety			X	X
Transportation				X
Visitor use and experience	X	X	X	X
Sustainability and long-term management			X	

Scoping included the public participation program and input obtained from partners and resource management agencies. Information on scoping is included in the "Consultation and Coordination" section.

Impact Topics Dismissed from Further Consideration

This section describes why some impact topics that commonly are considered during the planning process were not relevant to the development of a draft general management plan amendment for Dayton Aviation Heritage National Historical Park.

Accessibility for individuals with disabilities: In developing Dayton Aviation Heritage National Historical Park, the National Park Service has actively ensured compliance with the Americans with Disabilities Act. For example, all of the park's new or rehabilitated structures, such as the Wright-Dunbar Interpretive Center and the Huffman Prairie Flying Field Interpretive Center, were constructed to provide access to citizens with impaired mobility. Outdoor facilities at the flying field, including the parking lot, pedestrian bridge, and trail, were designed to accommodate visitors with disabilities.

Other park partners are similarly committed to Americans with Disabilities Act compliance. Access within the units at Dayton Aviation Heritage National Historical Park continues to be limited only when the integrity of historical structures would be compromised by modifications.

The National Park Service and its partners will continue to ensure accessibility to all Americans in the implementation of any of the alternatives in this general management

plan amendment. Depending on the selected alternative, actions could include:

- Using wheelchair-accessible vehicles to move visitors between the Huffman Prairie Flying Field Interpretive Center and flying field.
- Designing the rehabilitation of the Pekin Theater to comply with the Americans with Disabilities Act.
- Ensuring that any storage and maintenance facility could be used by park and partner employees with impaired mobility.

Air quality: All four park units are within the Dayton metropolitan area. Some of the sources of air emissions in this urban setting include automobiles, electrical power generating facilities, manufacturing plants, and a major airport and Air Force base.

Components of the action alternatives, such as construction of a hangar and maintenance facility and changes in traffic and parking, could produce short-term or long-term changes in air emissions. However, the incremental changes in air quality associated with implementing any of the park management alternatives would not be detectable compared to existing emissions from other sources in the Dayton area. As a result, air quality effects from the alternatives would be negligible.

The National Park Service and its partners will continue to encourage the reduction of air emissions under any of the alternatives. This would be accomplished through such methods as:

- Using energy-efficient construction, heating, and lighting techniques for buildings so that power plant emissions are minimized; and
- Encouraging the use of low- and no-emission transportation modes such as multi-passenger shuttles and bicycles.

Energy requirements and conservation potential: There would not be measurable differences in energy consumption and conservation potential among the alternatives being considered in this general management plan amendment. Under any alternative, the NPS will continue to implement its policies of reducing costs, eliminating waste, and conserving resources by using energy-efficient and cost-effective technology (NPS 2000a). Recently, this included incorporating energy efficiency in design and materials into the construction and rehabilitation of buildings throughout the park.

The National Park Service and its partners will continue to look for energy-saving opportunities in all aspects of park operations and encourage the use of energy-efficient transportation modes such as bicycles and multi-passenger shuttles. The National Park Service also will encourage the use of vehicles that employ alternative fuels and will strive to put into practice the evolving techniques that are featured on the NPS' alternative transportation Internet site. However, these actions would not result in measurable differences in area energy use.

Ethnographic resources: As described throughout the park's mission statement, statements of purpose, and significance statements in the section "Planning Direction or Guidance," a primary function of the park is to recognize and commemorate the legacy of Paul Laurence Dunbar and celebrate his contribution to the African-American community and American literature as a whole. This function would continue under any of the alternatives, which would not change resources related to Dunbar or the interpretation of the Dunbar story.

The African-American community in west Dayton may be considered an ethnographic resource. As discussed in *Management Policies 2001* (NPS 2000a), traditionally

associated peoples may include park neighbors and living communities that are rooted in the community's history and are important in maintaining its cultural identity. The Paul Laurence Dunbar State Memorial is an apt reminder of the African-American experience in America that continues to provide inspiration and cultural identity for the larger community surrounding the park. However, nothing in this current plan would affect the operation of the memorial or the way it relates to the African-American community in Dayton.

Traditional cultural properties or places are sites of special heritage value to contemporary communities because of their association with the cultural practices or beliefs rooted in the histories of those communities. Thus, they are important in maintaining the communities' cultural identities. No traditional cultural properties or places that are important to the African-American community or other cultural groups have been identified within the boundaries of Dayton Aviation Heritage National Historical Park.

Geology: There are no important geologic features within or near any of the units of Dayton Aviation Heritage National Historical Park. None of the alternatives proposed in this general management plan amendment would have the potential to affect area geology.

Indian trust resources: Indian trust assets are owned by American Indians but held in trust by the United States. Requirements are included in the Secretary of the Interior's Secretarial Order No. 3175, "Departmental Responsibilities for Indian Trust Resources" and Secretarial Order No. 3206, "American Indian Tribal Rites, Federal – Tribal Trust Responsibilities, and the Endangered Species Act." Indian trust assets do not occur within or near Dayton Aviation Heritage National Historical Park.

Mineral and agricultural resources: Park lands are not available for farming or mineral extraction. None of the proposed alternatives would have the potential to affect mineral and agricultural resources within the park or surrounding area.

Museum collections: None of the general management plan amendment alternatives would change the management, display, or vulnerability of any of the park's museum collections.

Natural lightscape (night sky): Alternative components such as the construction of a bridge or the development of the Pekin Theater by Wright Dunbar, Inc., in partnership with the National Park Service, could result in the installation of additional outdoor lighting in selected areas for security and improved visibility. However, light emissions from these sources could not be discerned from the light emissions of the surrounding Dayton metropolitan area and would have a negligible effect on the visibility of night skies. Nonetheless, consistent with *Management Policies 2001* (NPS 2000a), the National Park Service would work with involved parties to ensure that minimal-impact lighting techniques were used to minimize fugitive emissions from new fixtures.

Natural or depletable resource requirements and conservation potential: Natural or depletable resources address the quality, recycling, or conservation of petroleum products and other natural resources. The use and conservation of fuels was discussed above under energy requirements and conservation potential.

Differences in the use and conservation potential of other natural or depletable resources among alternatives would be negligible. While a substantial amount of fill could be required for an alternative involving a bridge over Ohio Highway 444, that fill would be obtained from the immediate

vicinity to meet Miami Conservancy District requirements that any fill placed within the retarding basin of Huffman Dam be compensated by a equal volume of excavation in the basin. The volumes of construction materials required for the alternatives' roadway, bridge, and building components would be indistinguishable compared to the volumes of these materials used annually in the Dayton area and would have a negligible effect.

Consistent with *Management Policies 2001* (NPS 2000a), the National Park Service at Dayton Aviation Heritage National Historical Park already stresses the acquisition of environmentally preferable and energy-efficient products. It has an active program to recycle paper, aluminum, and plastic. The U.S. Air Force also has aggressive waste reduction and recycling programs that would continue under any of the alternatives. The National Park Service would continue to look for in-house opportunities and work with partners to reduce waste and enhance the recycling and conservation of natural resources in day-to-day operations throughout the park.

Natural soundscape/noise: The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial all are in noisy settings. Effects of any of the alternatives on noise or the natural soundscape at any of these sites would be negligible for the following reasons.

The Wright Cycle Company complex is bounded on the north by West Third Avenue, which is one of the primary east-west thoroughfares of the Dayton area. The natural soundscape is overwhelmed by traffic noise, which produces a constant hubbub throughout the day and night, periodically punctuated by loud horns, sirens, engines, and automobile stereo systems. Development of the Pekin Theater by Wright Dunbar, Inc., in partnership with the National Park Service, would produce short-term construction noise, but these sounds would occur only during the daytime and would be consistent with existing noise in the area.

In the long term, the increased outdoor activities associated with some of the alternatives could produce additional noise, potentially including music from outdoor concerts. The National Park Service would work with park neighbors to identify their concerns, implement mitigation measures in association with partners, and provide follow-up to ensure their effectiveness. Mitigation could include orienting speakers toward West Third Street and away from homes, restricting volumes, and limiting concerts to daytime or early evening when traffic noises were greatest and human receptors were least sensitive.

The natural soundscapes at Huffman Prairie Flying Field and the Wright Memorial can be masked by traffic noise from nearby Ohio Highway 444 and other urban sources. Nevertheless, depending on the direction of the wind that can attenuate the urban noise, the natural soundscape sometime is discernable and can contribute to the contemplative atmosphere of both sites. However, both the flying field and the Wright Memorial are under the flight path for the Wright-Patterson Air Force Base runway, and all sounds periodically are overwhelmed by noise as planes take off or land.

Alternatives involving the construction of a bridge would have short-term construction noises. However, most of the construction work would be close to the highway where there were few sensitive receptors and the construction noise would be consistent with existing noise in the area. In the long term, increased outdoor activities associated with some of the alternatives could produce additional noise such as voices or electronic music. The absence of sensitive receptors, such as residences, near the fly-

ing field and memorial would result in a negligible effect.

Operations at Wright-Patterson Air Force Base: The primary mission of the U.S. Air Force is the defense of the United States. All park-related actions at Huffman Prairie Flying Field and the Wright Memorial will defer to this Air Force mission. It occasionally could be necessary to close these park areas, particularly the flying field, to visitor access to ensure that interference with the base's hazardous cargo mission and other activities do not occur. Impacts of these closures are addressed in the visitor use and experience impact topic.

Prime and unique agricultural lands: Prime farmland has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Unique land is land other than prime farmland that is used for production of specific high-value food and fiber crops. Both categories require that the land is available for farming uses. The lands within and near Dayton Aviation Heritage National Historical Park are within existing urban areas and military installations and have not been available for farming for many years. Moreover, the Wright-Patterson Air Force Base natural resources management plan maps the soils in the vicinity of Huffman Prairie Flying Field in the category "soils poorly suited for farming" (Wright-Patterson Air Force Base 2001c).

Sacred sites: These refer to specific, discrete, narrowly delineated locations that are identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of their established religious significance to, or ceremonial use by, an Indian religion. In Executive Order 13007, federal agencies are required to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites.

No sacred sites have been identified within the existing boundaries of Dayton Aviation Heritage National Historical Park. Six prehistoric burial mounds associated with the Early Woodland culture are located within the 27-acre Wright Memorial and are listed in the National Register of Historic Places. However, these mounds are so old that a direct connection to current tribes cannot be established (Ferguson and Perdue 2003). Potential impacts of the alternatives on these mounds are addressed in the archeological resources section.

Wilderness: There are no designated wilderness areas within or near Dayton Aviation Heritage National Historical Park, and no wilderness study areas have been identified in the vicinity.

PARK PARTNERS AND OTHER ORGANIZATIONS

This section summarizes legislated partnerships, including roles and responsibilities of each member. It also discusses how other organizations are working with the legislated partners to help achieve the mission of the park.

Legislated Partners

The legislation that created Dayton Aviation Heritage National Historical Park is provided in Appendix A. In naming the four sites to be included in the park, Congress in effect legislated a partnership of four organizations to operate the park. In the year 2000 legislation (also included in Appendix A) that expanded the park, Congress added "the Setzer building property (also known as the Aviation Trail building property), Dayton, Ohio." This action effectively designated Aviation Trail, Inc. as a legislated partner.

Among the legislated partners, a relationship exists that strongly encourages sharing of resources and appropriate joint priority setting. This general management plan amendment reaffirms the commitment of the National Park Service to the success of this relationship.

Roles and responsibilities of the five legislated partners, particularly as they relate to planning for this general management plan amendment, are identified below.

The National Park Service owns and/or manages most of the lands and buildings at The Wright Cycle Company complex. Under the authority of the Organic Act of 1916 that created the National Park Service, it also is the lead agency in promoting and regulating the use of all units within this national park. As such, the National Park Service is the lead agency in preparing this general management plan amendment and environmental impact statement.

The U.S. Air Force owns the Huffman Prairie Flying Field unit of the national park. The Air Force also owns the Wright Memorial, which is outside the national park boundary but is the location of the Huffman Prairie Flying Field Interpretive Center.

The U.S. Air Force is a cooperating agency in the preparation of this general management plan amendment and environmental impact statement. The U.S. Air Force acquired the Wright Memorial in 1978 and since that time has protected the significance of the site and has kept it open to the public. In 1991, Wright-Patterson Air Force Base opened Huffman Prairie Flying Field to the public to promote the significance of the site. U.S. Air Force representatives have been involved in all meetings leading to the preparation of this general management plan amendment and have assisted the National Park Service as full partners in the planning process.

The Ohio Historical Society has successfully operated the Paul Laurence Dunbar State Memorial, which is owned by the State of Ohio, since 1936. This agency is proud of its role in preserving and presenting to the public the Paul Laurence Dunbar story and property as an important part of Ohio's history. As a legislated partner, the Ohio Historical Society participated in the current general management plan amendment process.

Carillon Historical Park has owned the 1905 Wright Flyer III and Wright Hall since the park was established in 1950. As a legislated park partner, Carillon Historical Park has participated in the current general management plan amendment process.

Aviation Trail, Inc. is a non-profit organization established in 1981. Its original charter was to identify and preserve the aviation heritage of Dayton and the Miami Valley, increase the region's awareness of Dayton's place in aviation history through promotional and educational activities, and stimulate the area's economic development through aviation-related capital projects (Honious 2003).

In the year 2000, Congress expanded the national park boundary to include the Aviation Trail Visitor Center and Museum. This action made Aviation Trail, Inc. a legislated partner in the park. As a park partner, Aviation Trail, Inc. has participated in the current general management plan amendment process.

Other Organizations

In the establishing legislation for Dayton Aviation Heritage National Historical Park, Congress recognized the importance of partnerships with a variety of organizations in ensuring the success of the park and the interpretation of technological and literary achievements throughout the Miami Val-

ley. In this document, these organizations are referred to as "partners." Where it is necessary to distinguish between the organizations specifically referenced in the establishing and boundary-expanding legislation and those that the park has separately developed a relationship with, those organizations referenced in the legislation will be referred to as "legislated partners."

The Aviation Heritage Foundation is in a unique position among partners. The foundation is the non-profit, 501(c)(3) follow-on organization to the Dayton Aviation Heritage Commission, which was created for a limited lifetime by Congress in the park's establishing legislation. The Aviation Heritage Foundation is the management entity for the recently authorized National Aviation Heritage Area, and uses office space at 30 South Williams Street (park headquarters).

CONNECTED, CUMULATIVE, AND SIMILAR ACTIONS

This section identifies actions that are direct or indirect consequence of the alternatives. It also identifies actions that could have an additive impact on environmental resources, regardless of who takes the actions or whether they occurred in the past, are current, or will occur in the reasonably foreseeable future.

Connected and Similar Actions

Connected and similar actions are defined in Section 1508.25 of the Council on Environmental Quality (1978) regulations for implementing the National Environmental Policy Act. NPS guidelines interpret the definitions primarily to address defined actions, such as constructing buildings (NPS 2001). To meet the intent of the Council on Environmental Quality regulations, this planning environmental impact statement considers not only actions, but also other plans that could affect or be affected by park planning.

All capital improvements to park facilities described under the heading "Park History and Use Relative to Management Planning" are included as connected and similar actions. Additional plans and actions are briefly described below as they relate to the management of Dayton Aviation Heritage National Historical Park. The impacts of the three alternatives on these connected and similar actions and plans are evaluated in the "Environmental Consequences" section.

Connected and similar actions and plans are presented by the lead agency or organization for their development and/or implementation. Within these categories, actions and plans generally are described chronologically.

National Park Service Actions and Plans

Cooperation with the National Aviation Heritage Area. Congress recently created the National Aviation Heritage Area to recognize the Dayton region's leadership in the country's aviation history. The National Park Service will be cooperating with the National Aviation Heritage Area in presenting information to the public regarding the invention and development of aviation by the Wright brothers.

U.S. Air Force Actions and Plans

Military Mission of Wright-Patterson Air Force Base. In 1917, the U.S. Army Signal Corps signed the initial lease for lands now included in Wright-Patterson Air Force Base (Walker and Wickam 1986). Since then, the defense of the United States has been the primary function of this military installation. As stated in the introduction to the base's Integrated

Natural Resources Management Plan, "Natural resources management on Department of Defense (DoD) facilities must complement the military mission." However, it then acknowledges that "The mission of WPAFB is compatible with the goals of ecosystem management" (Wright-Patterson Air Force Base 2001c).

The Huffman Prairie Flying Field unit of Dayton Aviation Heritage National Historical Park is within Wright-Patterson Air Force Base, as is the interpretive center at the Wright Memorial. As described under "National Park Service Actions and Plans," the National Park Service and U.S. Air Force developed a memorandum of agreement for managing these areas. The U.S. Air Force is committed to the protection and management of the park and other natural and cultural resources by the legislation that established the park, other federal environmental and cultural resource protection and management legislation, and numerous Department of Defense and U.S. Air Force directives and legislation.

Facilities placement in or near the national park boundaries at Wright-Patterson Air Force Base must consider base operations and the need to protect visitor safety. Also, measures such as the temporary closure of some park facilities periodically are needed to accommodate the base's military mission. For example, the base closes Huffman Prairie Flying Field to visitors a couple of days each year when the hazardous cargo pads near the runway are used for loading munitions onto aircraft. To minimize visitor presence near these potentially high-hazard areas, the U.S. Air Force would not allow the development of visitor facilities between the flying field and the hazardous cargo pads.

Huffman Field and Wright Memorial Enhancement Plan. This January 26, 1990 document reviewed alternatives for enhancing Huffman Prairie Flying Field and the Wright Memorial. It also identified the impacts of alternatives on the mission, environment, and aesthetics of Wright-Patterson Air Force Base. Many elements of this plan were incorporated in park improvements made to date and are acknowledged by the existing conditions represented by this amendment's Alternative A – No Action / Continue Current Management. This plan is useful from a historical perspective because it served as the basis for the development and implementation of more detailed plans, but it largely has been superseded.

Future Action: Removal of the Former Combat Arms Training and Maintenance Facility. As described under the heading "Park History and Use Relative to Management Planning," the Combat Arms Training and Maintenance facility, used by U.S. Air Force security forces and other military personnel for training, was located close to the southwest boundary of Huffman Prairie Flying Field near corner marker 4. The U.S. Air Force has completed construction of a new Combat Arms Training and Maintenance facility on a more suitable site on the base. In 2005, the U.S. Air Force will be removing and mitigating the site of the former Combat Arms Training and Maintenance facility.

Future Action: Removal of Pylon Road. Pylon Road is a non-historic road through the flying field. Facilities along this road include a 12-vehicle parking lot. Future plans include the removal of the road and parking lot to help return the landscape to its appearance during the Wright brothers' era. This action could be linked with planned upgrades to Marl Road that are included in the action alternatives.

Wright-Patterson Air Force Base Integrated Natural Resources Management Plan. This plan, which was published in October 2001, incorporates the elements of Air Force-wide regulations, such as *Department of Defense Directive 4700.4,*

Natural Resources Management Program (1998) and *Air Force Policy Directive 32-70, Environmental Quality* (1994). It also contains, sometimes by reference, published and unpublished Wright-Patterson Air Force Base-specific plans. Those applicable to the areas around Huffman Prairie Flying Field and the Wright Memorial include the:

- Endangered species management plan (included in the Integrated Natural Resources Management Plan);
- Integrated pest management plan (2001);
- Wetland management plan (2000); and
- Wetland survey and airfield wildlife management plan (2000).

All proposed national park-related actions in the vicinity of Huffman Prairie Flying Field and the Wright Memorial are analyzed by the U.S. Air Force to ensure their compliance with this plan. Proposed deviations are subjected to a rigorous, senior-level review and must be justified (and often mitigated, if there would be adverse effects) before they can be implemented.

The Integrated Natural Resources Management Plan describes hunting in Wright-Patterson Air Force Base. The area north and east of Huffman Prairie Flying Field is identified as the Trout Creek Licensed Hunting Preserve. Pheasants and deer are most commonly hunted, but a variety of game birds and mammals can be hunted during the statewide seasons established by the Ohio Department of Natural Resources. This area is used for gun hunting for deer one week per year. Huffman Prairie Flying Field is closed to visitors during this period.

Wright-Patterson Air Force Base General Plan. This plan, published in May 2001, defines existing uses and conditions of lands and facilities within the base and identifies desired future uses and conditions. The lands in Huffman Prairie Flying Field and the Wright Memorial are identified as being used for outdoor recreation and are zoned to continue this use (Wright-Patterson Air Force Base 2001b). Air Force base lands that could be affected by the transit alternatives between the Huffman Prairie Flying Field Interpretive Center and the flying field are in the "development" zone but specific developments for these areas are not planned (Ferguson and Perdue 2003).

Integrated Cultural Resources Management Plan for Wright-Patterson Air Force Base. This plan was originally published in 1999 and has been updated several times, most recently in October 2003. It describes the cultural resources on the base, identifies areas of concern, describes deficiencies and corrective actions, and presents both short-term and long-term plans for resource management (IT Corporation and Hardlines: Design and Delineation 1999).

All proposed national park-related actions in the vicinity of Huffman Prairie Flying Field and the Wright Memorial are analyzed by the U.S. Air Force to ensure their compliance with this plan. Proposed deviations are subjected to a rigorous, senior-level review and must be justified (and often mitigated, if there would be adverse effects) before they can be implemented.

Plans and Actions of Other Legislated Partners

Development Plan for the Wright Brothers Inner West Enterprise Zone. From the time of its founding, Aviation Trail, Inc. was aware of the significance of the Wright-Dunbar neighborhood that surrounds The Wright Cycle Company complex. Therefore, in 1982 this organization adopted the redevelopment of the area as a goal and generated the *Development Plan for the Wright Brothers Inner West Enterprise Zone*. This plan identified actions to

assist in revitalizing the west Dayton neighborhood. Central to the plan were specific actions for eight identified Wright-related sites (Honious 2003).

Several of the recommended actions have been implemented through the development of the national park. These include rehabilitating the Hoover Block (now the Wright-Dunbar Interpretive Center) and restoring the building at 22 South Williams Street (now The Wright Cycle Company building) and operating them as museums. Other recommendations, such as reconstructing Orville's laboratory at 15 North Broadway and the Wrights' home at 7 Hawthorne Street have been altered, based on the suitability/feasibility study (included as Appendix A of the 1997 general management plan) that determined they had lost their historical integrity. Interpretive media have since been installed to enhance interpretation of the Wright brothers' lives in the west Dayton neighborhood.

Other Actions and Plans

Miami Conservancy District's Official Plan. After the devastating flood of 1913, the Miami Conservancy District was established to prevent future flooding within the city of Dayton. The *Official Plan for the Protection of the District from Flood Damage* (Miami Conservancy District 1916) provided the basis for a system of dams and levees that would protect Dayton from a storm equal to the 1913 storm plus 40 percent additional runoff, designated the Official Plan Flood (Miami Conservancy District 2004). Five large dams, including Huffman Dam just west of Huffman Prairie Flying Field, represent the operational component of the system and were put into service in 1922. The system is so effective that Federal Emergency Management Agency (1985) maps show the Dayton area to be protected from a flood with an expected frequency of 1 in 500 within any year (commonly called the somewhat misleading 500-year flood).

The dams continue to be operated in accordance with the Official Plan. In the past 80 years, the storage behind Huffman Dam has been required 135 times. The retarding basins behind the dams are promptly emptied to provide maximum storage for the next runoff event. For Huffman Dam, it would take just five days to discharge the water retarded during the Official Plan Flood (Miami Conservancy District 2004).

The U.S. Air Force and other landowners in the Mad River floodplain must continue to conform with regulations from the Miami Conservancy District based on the Official Plan. For this general management plan amendment, the bridge or roadway construction activities associated with alternatives would have to meet Miami Conservancy District requirements that any fill placed within the retarding basin of Huffman Dam below an elevation of 835 feet be compensated by a equal volume of excavation elsewhere in the basin.

West Third Street Historic District Designation. The ten-block West Third Street Historic District was listed in the National Register of Historic Places on March 10, 1988. This area of West Third Street between Shannon and Broadway with an extension onto South Williams Street included 28 buildings that were identified in the nomination as contributing features (Gannon 1987). The Wright Cycle Company complex is within the historic district. (The nearby Paul Laurence Dunbar State Memorial is in the separate Dunbar Historic District, designated June 30, 1980.) The designation as a historic district provided legal authority for enforcement by the Landmarks Commission of historic standards for appearance, consistent with the Historic District Ordinance sections of the Dayton Revised Code of General Ordinances, described below.

City of Dayton Historic District Zoning and Architectural Controls. A total of 16 historic districts have helped to encourage the revitalization of Dayton's older neighborhoods. The goal of historic district zoning in Dayton is to preserve and protect the city's significant architectural resources without compromising the rights of private property owners to use and enjoy those resources (Dayton, City of 1990).

To ensure the success of historic district zoning, the city created the Landmarks Commission to maintain architectural controls in historic districts and at landmark structures. The controls encourage compatible, sensitive modifications that enhance the character of historic districts. Prescribed methods are logical and reasonable and are designed to preserve the existing fabric of communities (Dayton, City of 1990).

The Revised Historic District Ordinance sections of the Dayton Revised Code of General Ordinances provide the legal basis for development controls in Dayton's historic districts. The Landmarks Commission must review and approve all work to the exterior of a property in a historic district or on a structure on the landmark list prior to initiation of that work.

Wright-Dunbar Village Urban Renewal Plan. The city of Dayton prepared this plan in September 1995. It describes the boundary of the Wright-Dunbar Village, which includes The Wright Cycle Company complex unit of the national park. It also identifies objectives of urban renewal, proposes renewal actions, identifies rehabilitation and redevelopment standards, and presents a structural conditions survey.

The plan included a comprehensive strategy to provide rehabilitation and redevelopment opportunities in the neighborhood, using urban renewal as the implementation tool. Its goal was to provide opportunities to improve neighborhood vitality through the acquisition of land for new residential, commercial, cultural, and entertainment development. The plan also provided for the rehabilitation of existing structures in this historically significant part of the city. These measures are consistent with the goals of park partners, such as Wright Dunbar, Inc., and with the NPS' development of The Wright Cycle Company complex within the Wright-Dunbar Village area.

Wright-Dunbar Village Strategic Development Plan. The Wright-Dunbar Village includes a 2.5-square-mile corridor extending a block or less from West Third Street from the Miami River on the east to James H. McGee Boulevard / Rosedale Drive on the west (Dayton, City of 1998). Three goals are identified:

- Making the West Third Street corridor a venue for business development;
- Hiring a consultant manager to facilitate and coordinate the long-term, sustained redevelopment of the West Third Street corridor; and
- Creating an environment of self-empowerment among the area stakeholders with the goal of total redevelopment of the West Third Street commercial corridor.

Wright Dunbar, Inc. and the Main Street Program. The Main Street Program is a national urban initiative administered through the National Main Street Center, which is affiliated with the National Trust for Historic Preservation. The program is locally administered through Downtown Ohio, Inc. and implemented at the neighborhood level by Wright Dunbar, Inc.

Wright Dunbar, Inc. was established to promote the revitalization of the West Third Street corridor and nearby residential neighborhoods. Wright Dunbar, Inc. has been providing design work to support the rehabilitation of historic buildings; organizing cooperation among business owners

and civic leaders; promoting the district to visitors, investors, and potential customers; and providing economic restructuring to better help the district meet challenges from outlying developments.

The non-profit Wright Dunbar, Inc. assists local partners in their planning and implementation of comprehensive revitalization strategies for the commercial district. Some of the incentives offered for locating a business in the Wright-Dunbar Business Village include aid for completing historic and new market tax credit applications; guidance in securing façade easements, grants, and loans; being included in the marketing and promotion of the village, and enhanced local security. In the past five years, more than $18 million has been invested in Wright-Dunbar Business Village historic buildings (Wright Dunbar, Inc. 2004).

Wright Dunbar, Inc.'s actions at the Pekin Theater and Fish Market buildings are of particular relevance to this general management plan amendment. Wright Dunbar, Inc. owns these buildings that are located just east of The Wright Cycle Company complex. It obtained federal grant money and has already started their rehabilitation.

Ohio Highway 444 Bike Trail. As the park's general management plan (NPS 1997c) was being prepared, planning was underway in Fairborn for development of a bike trail paralleling Kauffman Avenue. The trail would link Fairborn with the Wright Memorial.

Huffman Prairie Cooperative Agreement. The 109-acre Huffman Prairie is one of the largest tall-grass prairie remnants in Ohio. The Ohio Natural Areas Council designated Huffman Prairie a State of Ohio Natural Landmark in 1986. Huffman Prairie came under the advisory management of the Ohio Chapter of the Nature Conservancy in 1990 through a cooperative agreement between the Nature Conservancy's national office and the U.S. Department of Defense (Wright-Patterson Air Force Base 2001c).

Recovery Plan for the Indiana Bat. As described in the "Affected Environment" section, a maternity colony of the endangered Indiana bat was discovered in a tree on the Wright State University campus in 2000. The same investigation documented that the trees immediately around Huffman Prairie Flying Field and at the Wright Memorial provide summer roosting and foraging habitats for this species (Wright-Patterson Air Force Base 2001c).

In 1983, the U.S. Fish and Wildlife Service prepared a recovery plan for this species. An agency draft of a revised recovery plan was developed in 1999 but has not been finalized (U.S. Fish and Wildlife Service 1999). All actions proposed for wooded areas around the flying field and Wright Memorial must be evaluated for conformance with the U.S. Fish and Wildlife Service plan to ensure the continued existence of this species.

Future Action: Wright Company Factory Boundary Assessment. The National Park Service would encourage and support efforts to protect and preserve the Wright Company factory buildings. These structures have been determined to meet the criteria for national significance because of their intimate association with Wilbur and Orville Wright as the first American facilities specifically designed and built for the manufacture of airplanes.

The National Park Service would not manage the site itself, but is willing to provide technical assistance for the nomination of the site as a National Historic Landmark and documentation of the Wright Company structures through the Historic American Buildings Survey and Historic American Engineering Record (HABS/HAER) program. The National Park Service also proposes to increase the interpretation of the

Wright Company at other units of Dayton Aviation Heritage National Historical Park, as funding and staffing permit.

Actions Considered in Determining Cumulative Effects

Sections 1508.7 and 1508.25 (a)(2) of the Council on Environmental Quality (1978) regulations for implementing the National Environmental Policy Act require assessment of cumulative effects in the decision-making process for federal actions. Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 *Code of Federal Regulations* 1508.7). Cumulative effects are considered for the alternative to continue current management and the two action alternatives.

As explained in NPS' guidance on environmental impact analysis (NPS 2001), the intent is to determine the additive impact of the alternative on each resource of concern. It states "It is irrelevant who takes these actions (i.e., they are not confined to NPS or even federal activities), or whether they took place in the past, are taking place in the present, or will take place in the reasonably foreseeable future."

Cumulative effects were determined by combining the effects of each alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other past, ongoing, or reasonably foreseeable future actions at Dayton Aviation Heritage National Historical Park and in the surrounding region.

All capital improvements to park facilities described under the heading "Park History and Use Relative to Management Planning" and all plans and actions identified as "Connected and Similar Actions" were considered in conjunction with the alternatives to determine cumulative effects. Other actions considered in conjunction with the alternatives for this general management plan amendment to determine possible cumulative effects include the following:

Urbanization of the Dayton Metropolitan Area. Dayton originally was settled in 1796 (Honious 2003). The west Dayton area, which includes The Wright Cycle Company complex and the Paul Laurence Dunbar State Memorial, was annexed to the city of Dayton in 1869, the same year that the Wright brothers' father, Milton Wright, purchased the house at 7 Hawthorne Street (Crouch 1989). Urbanization led to the development of the park's historical structures in this area but also removed native assemblages of plants and animals and resulted in emissions that polluted the area's air and water.

Decline and Revitalization of the West Third Street Corridor. The West Third Street corridor was never an affluent area. Crouch (1989) reports that it was a streetcar suburb, founded in the late 1860s by entrepreneurs who established a horse-car rail line and "hoped that the availability of cheap transportation would increase the value of their landholdings, and encourage the sale of new lots and homes in outlying areas to workmen previously forced to live within walking distance of the industrial and commercial core of the city." He says the area was populated by "working class citizens" and describes it as "a tight, cramped, urban neighborhood." Crouch reports that by 1912, "the old neighborhood was changing for the worse" and that these changes contributed to the decision of the Wright family to move to the suburb of Oakwood in 1913.

The neighborhood continued to decline as one economically disadvantaged group after another moved into the area to take ad-

vantage of its inexpensive housing and excellent transportation links to many of Dayton's jobs. The workmen of the early Wright brothers' era were replaced by poor immigrants, many of whom were from eastern Europe. After World War I, the community became predominantly African-American. Frustrations with social and economic conditions boiled over in September 1966 and June 1967 with riots centered in west Dayton. The riots reinforced already negative perceptions of the area. As businesses moved out, commercial buildings were abandoned and became dilapidated or even collapsed from neglect.

Despite the deterioration of the neighborhood, some continued to have a vision of the corridor as an area with affordable housing close to a vibrant commercial center. The Ohio Historical Society's Paul Laurence Dunbar State Memorial continued to be a focus of pride and an anchor of stability in the neighborhood. Revitalization efforts were bolstered in 1982 by Aviation Trail, Inc.'s discovery of two intact structures associated with the Wright brothers' early commercial activities and their adoption of the redevelopment of the area as a goal, including the preparation of the *Development Plan for the Wright Brothers Inner West Enterprise Zone*. The plans and actions of many groups described previously in this document have contributed to the revitalization of the neighborhood, and improvements are continuing.

Establishment of the Facilities that Contain Other Park Units. Establishment and operation of Wright-Patterson Air Force Base (1917), Paul Laurence Dunbar State Memorial (1936), and Wright Hall at Carillon Historical Park (1950) all served to protect important historic resources. The latter two actions also provided interpretation to the public, which helped maintain visibility regarding the area's cultural heritage.

Establishment of the Wright Memorial. On August 19, 1940, the city of Dayton dedicated this park and monument to commemorate the Wright brothers. More than 60 years later, it provided a site for the construction of the Huffman Prairie Flying Field Interpretive Center.

Establishment and Operation of Dayton Aviation Heritage National Historical Park. The establishment of this national park in 1992, its expansion in 2000, and its operation have had a substantial effect in the vicinity of all four of its units, plus the Wright Memorial. More than any other action, designation as a park confirmed the historic importance of the units incorporated in its boundaries. Funding became available from many sources that previously had not been accessible or had not been tapped. As described under "Connected and Similar Actions," organizations such as the Aviation Heritage Foundation, Inc. and Wright Dunbar, Inc. have been formed to take advantage of the momentum associated with establishing and operating the park

Centennial of Flight Celebrations. The Inventing Flight program helped accelerate restoration, rehabilitation, and new construction efforts so that facilities would be ready before the 100th anniversary of the Wright brothers' first flight. This resulted in many permanent improvements within and near all four park units. Many of these were among the capital improvements listed under the heading "Park History and Use Relative to Management Planning."

CHAPTER 2: ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE

This section describes how alternatives for this general management plan amendment for Dayton Aviation Heritage National Historical Park were formulated and provides descriptions of each alternative. It also identifies actions or alternatives eliminated from further consideration. The preferred alternative and environmentally preferred alternative are identified. Summaries of the important features of the alternatives, their effectiveness in meeting goals of this general management plan amendment, and the effects of the alternatives also are provided.

MANAGEMENT PRESCRIPTIONS

This section defines the management prescriptions that could be applied to Dayton Aviation Heritage National Historical Park under either of the action alternatives. The management prescriptions define the desired resource conditions and visitor experiences, including the appropriate kinds and levels of management, use, and development.

The allocation of management prescriptions to create zones determines what resource and management conditions should exist in the park and the range of visitor experience opportunities that may be available. The various management prescriptions possess different characteristics and have different implications for management and public use. Each management prescription describes:

- A specific set of desired resource conditions;
- Essential elements of the visitor experience under that prescription; and
- The kind of area (including level of acceptable development, visitor use, and management) in which those experiences should be provided.

Regardless of the targeted visitor experience or resource condition, all management prescriptions comply with the purpose and significance of Dayton Aviation Heritage National Historical Park. Because management prescriptions define desired future conditions, they do not apply to Alternative A, which would continue current management.

The identification of management prescription zones is required by NPS policies guiding park planning (NPS 1998a). Dayton Aviation Heritage National Historical Park has two proposed management prescription areas: a Visitor Services/Interpretive Zone and a Historic Landscape Zone.

VISITOR SERVICES/ INTERPRETATION ZONE

Resource Condition

This area is intensively managed to protect cultural resources, provide public safety, and provide an effective learning environment. This area is relatively well developed and there is a moderate tolerance for impacts on the resources where necessary for essential visitor and operational needs. As much as possible, the historic landscape is preserved on the exterior of existing buildings. The exterior of new construction would be designed to be appropriate for the historic landscape. The condition of the resources is maintained to the highest degree possible consistent with the purpose of this zone.

Visitor Experience

Visitors receive park information and orientation in this zone and gain an effective understanding of the significance of the park units and the history of the Wright brothers, the works of Paul Laurence Dunbar, and the birth and development of aviation. There is a high level of opportunity for self-guided ex-

ploration and staff-led education and interpretation programs within buildings and outdoors. Space for some recreational activities such as walking and picnicking is provided. Special events take place in this area.

This is a facility-dependent experience that includes exhibits and films. It is directed at visitor orientation, education, resource interpretation, and providing services. This zone would contain the most interactive experiences available in the park.

Within the visitor services/interpretation zone there is a moderate to high degree of visitor interaction with NPS staff and a high probability of encountering other visitors. The sights and sounds of other visitors and vehicles would be present. The visitor services/interpretation zone is easily accessible for visitors with impaired mobility.

Facilities

This area contains facilities that orient visitors to the site and provide interpretation. Convenient, safe access is provided. This zone is near a transportation network.

Visitor facilities may include orientation exhibits, visitor centers, classrooms, auditoriums, theaters, indoor and outdoor seating and tables, parking, restrooms, signage, roads, paved and gravel pathways, bridges, and other structures. Additional facilities for park administration and operations include offices, general office supply and equipment storage areas, mechanical equipment and utilities, and maintenance areas.

All development emphasizes operational efficiency, environmentally sustainable practices, and human safety. Development provides full accessibility and is designed to complement park resources. Where possible, there is adaptive reuse of historic structures.

HISTORIC LANDSCAPE ZONE

Resource Condition

This management zone is moderately managed and conveys a commemorative feel. It contains very limited development. Because this is an area where the influence of historic events is conveyed, there is a low tolerance for impacts on the resources. Impacts are permitted only where necessary for essential visitor and operational needs. In an effort to create a contemplative feel, limited interpretive programming is offered.

Visitor Experience

In this zone there is a feeling of solitude, and people can reflect on the history and significance of events that occurred in the area. Except for aircraft overflights, there is limited noise from adjacent land uses. Formal or informal visitor activities may be offered, although there is little regular programming. Other people may be present in the area but the likelihood of interactions with park staff and other visitors is moderate to low.

This area is not facility-dependent and is directed at contemplation and low-impact outdoor recreation. Space may be provided for picnicking and the area is maintained in a park-like or pastoral setting, possibly with seating areas.

Facilities

There are no permanent facilities in this zone. Trails are accessible to all visitors, but many may be unpaved, and their width may limit group use. Some informal social trails may exist. Interpretive and directional signs are provided on some formal trails. Trails are self-guided and may lead to vistas where visitors can gain a perspective on the historic significance of the area. Recreational areas are maintained for picnicking, walking, and other undirected outdoor activities.

FORMULATION OF ALTERNATIVES

This section describes how, in concert with public and partner input, the National Park Service developed the alternatives presented in this draft general management plan amendment.

ALTERNATIVES DEVELOPMENT PROCESS

The "History of Public Involvement" section under the heading "Consultation and Coordination" in Chapter 5 of this document describes the public participation process, including scoping. This section describes how the National Park Service used input from the public and partners to develop the three alternatives evaluated in this draft general management plan amendment.

The development of alternatives began in October 2002 with the distribution of a park newsletter. The newsletter provided background information regarding park planning and the need for an amendment, identified some of the issues, and solicited public input with following prompts:

- Are there other issues or concerns about Dayton Aviation Heritage National Historical Park that you think that we should consider, or other ideas about park management that you would like to share?
- Tell us what you would like to see included in a park management alternative to improve park facilities or operations.

A public meeting in Dayton on December 4, 2002 included similar background information and a solicitation for public input regarding issues and alternatives.

An alternatives development workshop was conducted by the National Park Service from February 11-14, 2003 at Carillon Historical Park. Participants included representatives from all five legislated park partners plus the Dayton Aviation Heritage Commission. The workshop team:

- Reviewed the issues and management approaches provided by the public and informal agency scoping;
- Using that information as a starting point, identified concepts that expressed two ways of managing the park that were different from the current approach; and
- Developed some of the features of two preliminary alternatives that would implement those concepts.

Following the workshop, the National Park Service developed additional detail to fully characterize the two preliminary action alternatives (which evolved into the Alternative B and Alternative C described later in this document) plus the alternative to continue current management (Alternative A).

A second workshop to develop the NPS preferred alternative was held by the National Park Service on August 25-27, 2003 at Carillon Historical Park. Participants again included representatives from all five legislated park partners plus the Dayton Aviation Heritage Commission.

The workshop team used the "Choosing by Advantages" method to identify the attributes and advantages of each alternative, and to assemble the best components of each into a preliminary preferred alternative. The team first developed a list of objectives for management that took into account the requirements described previously in this document under the heading "Planning Direction or Guidance." Workshop participants then identified attributes of the three preliminary alternatives. Attributes were

identified for several factors, including the ability to:

- Provide for a range and diversity of partnerships;
- Provide for an enjoyable, positive visitor experience; and
- Improve the efficiency and effectiveness of park operations.

The team scored attributes of the three preliminary alternatives on the degree to which each met the objectives. This process enabled the team to better understand the specific benefits of each alternative and resulted in the creation of a preferred alternative that incorporated the best elements of all preliminary alternatives.

A close review of the preferred alternative demonstrated that it was identical in most aspects to the preliminary Alternative C. Therefore, this alternative was modified slightly to incorporate all beneficial elements from the other alternatives that it previously did not include.

The three alternatives provide a range of approaches to park management, based on outcomes. Alternative A would continue current management and is the no action alternative that is required by the National Environmental Policy Act. Alternative C is the NPS' preferred alternative.

MITIGATION

Mitigation is a key concept in resource management planning. It provides a means for accommodating visitor interactions and park operations with the park's cultural and natural resources and their tolerances for disturbances.

Mitigation and best management practices are regularly used to ensure that the park's cultural and natural resources are protected and preserved for future visitors without impairment. In the legislation that created the National Park Service, Congress charged it with managing lands under its stewardship "in such manner and by such means as will leave them unimpaired for the enjoyment of future generations" (NPS Organic Act, 16 *United States Code* 1). As a result, the National Park Service routinely evaluates and implements mitigation whenever conditions occur that could adversely affect the sustainability of park resources.

In accord with the National Environmental Policy Act and Section 106 of the National Historic Preservation Act, the National Park Service would implement mitigation measures to help avoid or minimize potential adverse effects on National Register-eligible historic properties. The National Park Service and the U.S. Air Force routinely consult with the Ohio State Historic Preservation Officer and provide the Advisory Council on Historic Preservation with a reasonable opportunity to comment prior to implementing actions that could affect any of the park's archeological resources, historic districts, sites, buildings, structures, landscapes, and objects that are listed, or eligible for listing, in the National Register of Historic Places. (This part of Ohio is not represented by any tribal historic preservation officers.) Consultation with these agencies would help the National Park Service and the Air Force ensure that there would not be any loss or substantial alteration of any register-eligible cultural resource's integrity, based on such factors as location, design, setting, materials, workmanship, feeling, or association.

Mitigation was included throughout the formulation of the action alternatives included in this general management plan amendment. For example:

- Contractors would be required to use best management practices to minimize soil loss and water pollution

during all road or bridge construction associated with alternatives.

- Burying steam lines or providing visual screening with fencing or vegetation was included in some of the alternatives to reduce the aesthetic effect of the steam lines behind the Huffman Prairie Flying Field Interpretive Center.
- Shuttles used to transport visitors between the flying field and interpretive center would have to be fully accessible by visitors with impaired mobility, even though such shuttles would be owned and operated by a third party such as the Greater Dayton Regional Transit Authority.

ALTERNATIVES OR ACTIONS ELIMINATED FROM FURTHER CONSIDERATION

Several actions suggested by the public or partners were not incorporated into this draft general management plan amendment. Consistent with Section 1502.14 of the Council on Environmental Quality (1978) guidelines for implementing the National Environmental Policy Act, this section identifies those actions and briefly discusses the reasons why they were eliminated.

As described in the "Consultation and Coordination" section, the identification of issues and development of alternatives provided opportunities for public and partner input through responses to newsletters, at meetings, and via the Internet. However, not all actions suggested by the public and partners are included in this draft general management plan amendment. Actions or alternatives were eliminated from further consideration because they:

- Were adequately addressed in the park's existing general management plan (NPS 1997c);
- Were not feasible;
- Are already prescribed by law, regulation, or policy; or
- Would be more appropriately addressed in lower-tier park plans, such as implementation plans.

This section briefly describes each of these actions and the basis for excluding them from this draft general management plan amendment.

Transfer Ownership of Huffman Prairie Flying Field and the Wright Memorial. These two areas are owned and managed by the U.S. Air Force. However, the U.S. Air Force's primary mission is national defense. It is not driven by the NPS' mandate in the Organic Act to "promote and regulate the use of the Federal areas known as national parks . . . to preserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same." Therefore, it was suggested that ownership of these areas, and possibly of some of the lands surrounding Huffman Prairie Flying Field, such as the Marl Road corridor, be transferred to the National Park Service.

Section 3.5 of *Management Policies 2001* (NPS 2000a) presents the criteria that must be met for the National Park Service to acquire property. These criteria are defined in 16 *United States Code* 460l-9(c)(2). They include the requirement that "Other alternatives for management and resource protection are not adequate."

Based on this criterion alone, a transfer of ownership of these two areas from the U.S. Air Force to the National Park Service cannot be justified. The U.S. Air Force has been an excellent steward, effectively protecting the natural and cultural resources at both sites and allowing public use for commemoration, education, interpretation, and recreation. Based on its record of effective performance, the U.S. Air Force will continue to own the properties and

perform its role as a legislated partner in Dayton Aviation Heritage National Historical Park.

Change Boundary to Include All or Part of the Wright Memorial and Other Lands Associated With Huffman Prairie Flying Field. As a part of the planning process, the National Park Service evaluated the potential to modify the park boundaries to include all or part of the Wright Memorial, as well as other lands associated with Huffman Prairie Flying Field. Section 3.5 of *Management Policies 2001* (NPS 2000a) points out that "[t]he boundary of a national park may be modified only as authorized by law. . . . Where park-specific authority is not available, the Land and Water Conservation Fund (LWCF) Act of 1965, as amended, provides an additional, but limited, authority to adjust boundaries."

Within the constraints of existing law, and as defined in *Management Policies 2001* (NPS 2000a), there are two specific criteria that must be met for the National Park Service to recommend a boundary change. The National Park Service must demonstrate that:

- The added lands will be feasible to administer, considering their size, configuration, and ownership, and hazardous substances, costs, the views of and impacts on local communities and surrounding jurisdictions, and other factors such as the presence of exotic species; and
- Other alternatives for management and resource protection are not adequate.

While the added lands would be feasible to administer, the U.S. Air Force, as noted in the discussion about transferring ownership, clearly provides adequate management. Therefore, although there may be perceived advantages to expanding park boundaries to include these resources, such a recommendation cannot be justified.

Change Boundary to Include the Pekin Theater and Fish Market Area. As a part of the planning process, the National Park Service evaluated the potential to modify the park boundaries to include the Pekin Theater and Fish Market properties located on West Third Street. While the added lands would be feasible to administer, Wright Dunbar, Inc., through its effective management and protection of the Pekin Theater and Fish Market properties, clearly provides adequate management. Therefore, although there may be perceived advantages to expanding the park boundaries to include these resources, such a recommendation cannot be justified.

Change the Name of the Park. The name of a park is not a general management planning issue. Therefore, changing the name of the park was not considered in this general management plan amendment.

However, considerable interest was expressed in changing the park name to include "Wright brothers" and "Dunbar." Accordingly, the park superintendent is preparing a legislative proposal for submission to Congress to request that the name of the park be changed to include the names of the three men it honors.

Designate the Paul Laurence Dunbar State Memorial as a Separate National Historic Site. It was suggested that the perceived importance of Paul Laurence Dunbar is diminished by grouping him with two non-literary figures (the Wright brothers). A goal of providing maximum exposure of Dunbar and his significance and telling his story more effectively might be better served by designating the Dunbar property as a separate national historic site. Suggestions included total separation from Dayton Aviation Heritage National Historical Park or a separate designation but continued management in coordination with the Wright brothers sites.

The Ohio Historical Society declined consideration of a separate designation because it would disrupt the fundamental relationship between Dunbar and the Wrights. The personal friendship and professional relationship among these men ran counter to the prevailing racial strife of the late 1800s and early 1900s and is an important concept to present to visitors.

The Ohio Historical Society feels that the Dunbar story could stand on its own. However, it supports the Dunbar site being a part of the existing national park and will manage this unit to encourage the success of the park. Within this existing framework, the Ohio Historical Society would support a different park name that was more descriptive of both Dunbar and the Wright brothers (Ness 2003).

Formalize Operating Agreements with All Legislated Partners. The National Park Service already has cooperative agreements with the U.S. Air Force and Aviation Trail, Inc. (see the "Connected and Similar Actions" section). To date, such agreements have not been developed with Ohio Historical Society or Carillon Historical Park, but there are no impediments to establishing such agreements in the future. Cooperative agreements are consistent with the park's general management plan (NPS 1997c) and do not need to be addressed in an amendment.

Define Relationships with Other Organizations. Entities identified by name during scoping included the city of Dayton, Wright State University, Five Rivers MetroParks, Miami Conservancy District, and Greene County Park District. As demonstrated in the "Connected and Similar Actions" section, the National Park Service already has defined relationships with several organizations (already including the city of Dayton) through cooperative agreements, memoranda of understanding, or similar documents. Under the park's general management plan (NPS 1997c), the National Park Service and other organizations can continue to establish short- and long-term relationships to meet objectives.

Provide Parking near the West Dayton Park Units. The park's general management plan established that the National Park Service did not plan to request a boundary adjustment to provide parking, as the urban setting has opportunities for vehicle parking to be provided by partners. Parking has since become a component of the city's redevelopment planning for the entire West Third Street corridor. The park partners have worked with the community and will continue to do so to ensure adequate parking for park visitors and commercial enterprises, including employees and patrons, throughout the revitalized Wright-Dunbar area.

Parking in the area was improved to accommodate visitors celebrating the centennial of flight in 2003. In 2004, three additional parking lots are being constructed by Wright Dunbar, Inc. in the immediate vicinity of The Wright Cycle Company complex. Based on the success achieved to date in meeting the need for parking in this area, there is no need to change the approach established in the general management plan.

Provide Travel Capabilities between the Park Units. The park's general management plan established that transportation linkages would be the responsibility of partner organizations, including the Greater Dayton Regional Transit Authority, regional park districts, and others. Funding for a transit link was provided during the celebrations commemorating the centennial of flight in 2003. Based on actions to date, there is no need to change the approach established in the general management plan.

Consider Other Alignments and Configurations for a Bridge over Ohio Highway 444. The National Park Service worked with a transportation engineering firm, Burgess & Niple, Limited, to develop and evaluate multiple bridge configurations and alignments. Five preliminary bridge options were designed and screened for suitability based on costs, environmental impacts, ability to promote an appropriate sequence of visitation, and effectiveness of moving visitors between the sites.

Each option had advantages and disadvantages relative to the others. Option 6, which became the basis for Alternative B, was a good representation for possible bridge configurations for this general management planning level of analysis. If the final preferred alternative selected from this draft general management plan amendment were to include a bridge, the National Park Service would conduct a more detailed National Environmental Policy Act analysis of alternatives prior to constructing that component.

Provide a Bikeway from Huffman Prairie Flying Field to the Interpretive Center. The park transportation plan (Burgess & Niple, Limited 2002) called for a bikeway for pedestrians and non-motorized vehicles from Huffman Prairie Flying Field Interpretive Center to the flying field. This bikeway, which is not within the national park boundaries, currently is under development by the Greene County Park District and the Ohio Department of Transportation. It will link the Kauffman Avenue Bikeway with the Mad River Recreation Trail and the Huffman Prairie Flying Field bikeway.

Improve Linkages to the National Museum of the U.S. Air Force. Dayton Aviation Heritage National Historical Park and the National Museum of the U.S. Air Force already promote each others' sites to visitors and will continue to improve this connection. Transit linkages are being addressed by the city of Dayton and the Greater Dayton Regional Transit Authority.

Include Other Wright Brothers Resources in the Park. Suggestions most commonly included the site of the Wright family home at 7 Hawthorne Street and the site of the bicycle shop building leased by the Wrights from 1897 until 1916. Because both of these structures were moved to the Henry Ford Museum and Greenfield Village near Dearborn, Michigan in 1936, this suggestion sometimes included constructing replicas on the original sites. Other suggestions included expanding the park to incorporate earlier bicycle shop sites, the original Wright Company aircraft manufacturing factory, and the Orville Wright Laboratory.

In accordance with the 1992 legislation that established the park, some of these areas were investigated and determined not to constitute suitable additions to the national park system or, in some limited cases, inclusion in the national park system was determined not to be feasible at that time. A copy of the suitability and feasibility study was included in Appendix A of the park's general management plan (NPS 1997c). An investigation regarding adjusting the park boundary to include the Wright Company factory currently is underway.

Develop Playgrounds and Picnic Facilities at Some Park Units. These types of facilities do not have any connection to the mission and significance of Dayton Aviation Heritage National Historical Park. Moreover, picnic tables already exist at Carillon Historical Park and the Wright Memorial. While the National Park Service may encourage the development of such facilities by others, it would not be involved in their ownership, operation, or management. Through cooperative agreements, it may be appropriate to use such sites for educational outreach or commu-

nity activities with links to activities at Dayton Aviation Heritage National Historical Park.

Provide Additional Amenities at Huffman Prairie Flying Field. Because this area is in the ten-year floodplain of the Mad River, it is unsuited for permanent structures. Moreover, because of hazards associated with nearby military activities, including runway operation and loading of munitions and other materials onto aircraft, the U.S. Air Force wants to avoid the installation of amenities that could result in the frequent, prolonged use of the area by large numbers of visitors.

Improve Planning for Disaster Response, Law Enforcement, and Neighborhood Safety. The park partners currently have concepts for enhancing capabilities and sharing resources. Moreover, the existing partnership structure allows collaboration on these subjects. Therefore, this was not an issue that needed to be addressed as part of a general management plan amendment.

The National Park Service recognizes that neighborhood safety and security at all park sites will be vital to ensuring an enjoyable visitor experience and to making the park a welcome member of the community. The city of Dayton provides law enforcement and other police services to the west Dayton units and Carillon Historical Park. Police services within Wright-Patterson Air Force Base are provided by the military. The collaborative capabilities of partners can be used to develop effective plans for the units.

ALTERNATIVE A – NO ACTION / CONTINUE CURRENT MANAGEMENT

This section describes Alternative A, including the concept that defines the alternative, its specific features, and costs.

CONCEPT

Sections 1502.14 and 1508.25 of the Council on Environmental Quality (1978) guidelines for implementing the National Environmental Policy Act require that the alternative of no action be included in all environmental evaluations. Under this alternative, the National Park Service would continue to manage Dayton Aviation Heritage National Historical Park in accordance with the park's existing general management plan (NPS 1997c).

According to the guidance provided in the NPS' Director's Order #12 (NPS 2001):

> *The "no action" alternative is developed for two reasons. It is almost always a viable choice in the range of reasonable alternatives, and it sets a baseline of existing impact continued into the future against which to compare impacts of action alternatives. This is important context information in determining the relative magnitude and intensity of impacts.*

This statement includes two important concepts:

- The alternative of no action would not end all management within Dayton Aviation Heritage National Historical Park. It would continue the current management practices (certainly "a viable choice" at this park) into the future. Therefore, throughout this document, the no action alternative mandated by the National Environmental Policy Act is referred to as the alternative to continue current management.
- It sets the baseline against which to compare impacts of action alternatives as the "existing impact *continued into the future*." This means that the baseline is *not* year 2004 conditions, but the conditions that would occur in the year 2025 if the management approaches in effect in 2004 were continued. For example, visitor numbers for the action alternatives in 2025 must be compared to visitor numbers from the alternative to continue current management in 2025, and not to visitor numbers that existed in 2004.

The features of Alternative A are summarized in Table 2. A more detailed description of the features of this alternative are provided following the table.

FEATURES

The alternative to continue current management would preserve the important historic, cultural, and natural resources in Dayton Aviation Heritage National Historical Park for future generations by maintaining current management practices and existing park facilities. Key features of this alternative would include the following:

- Visitor facilities and activities, site access, and transportation between sites would remain the same as they are currently, and partnerships would continue in their present form.
- The National Park Service would continue to provide access and interpretation for a wide range of visitors, with a unique experience at each site. Most interpretation would occur within park buildings.

TABLE 2: FEATURES OF THE ALTERNATIVES FOR THE DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK GENERAL MANAGEMENT PLAN AMENDMENT

Site and Function	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Park-wide			
Concept	Continue to manage the park consistent with the 1997 general management plan.	Improve the national park experience for the traditional visitor, emphasizing those values that contribute to the park's designation as a unit of the national park system. Implement programs, activities, and events to convey the important elements of the park story with an emphasis on aviation, the personalities, and events that comprise this story. Focus on efficient movement between units and effective way-finding to ensure visitors easy access to the park's resources.	Maintain a quality experience for the traditional visitor, but enhance the park's outreach programs to provide more diverse educational opportunities for the Dayton region. Expand the role of regional agencies and organizations as park partners in developing programs and activities that focus on Dayton's role and contribution to the historical events represented by each unit of the park.
The Wright Cycle Company Complex			
Management prescriptions	Management prescriptions would not be employed.	The entire Wright Cycle Company complex would be within the Visitor Services/Interpretation zone.	Same as Alternative B.
Administration	NPS management, in partnership with Aviation Trail, Inc., would continue within the park boundaries.	Same as Alternative A except as follows.	Same as Alternative B.
	Park headquarters would continue to be located at 30 South Williams Street. The third floor of the Wright-Dunbar Interpretive Center would continue to be used for park operation offices, including interpretive and maintenance staff. Aviation Trail, Inc. would continue to own and operate the Aviation Trail Visitor Center and Museum.	Administrative and operations space for other legislated park partners would be provided within the current boundaries of The Wright Cycle Company complex.	Same as Alternative B.
	The house at 26 South Williams Street would remain vacant without any stabilization or rehabilitation.	The house at 26 South Williams Street would be rehabilitated for administrative and/or partner use.	Same as Alternative B.
Maintenance and storage	There would be no dedicated maintenance/storage facility within The Wright Cycle Company complex. Maintenance would continue to occur from an offsite location. Storage would continue to be provided in miscellaneous space in the basements of The Wright Cycle Company building, Wright-Dunbar Interpretive Center, and Aviation Trail Visitor Center and Museum.	A new maintenance and storage facility would be built within an expanded park boundary to meet NPS and legislated partner requirements.	The National Park Service would enter into an agreement with a partner organization for use of a storage and maintenance facility located near The Wright Cycle Company complex to meet both NPS and partner requirements. This facility might be built by a partner to NPS specifications.

TABLE 2: FEATURES OF THE ALTERNATIVES FOR THE DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK GENERAL MANAGEMENT PLAN AMENDMENT (CONTINUED)

Site and Function	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Maintenance and storage (continued)	Deliveries would continue to be made to the park headquarters or the Wright-Dunbar Interpretive Center.	Deliveries would be made to the new, onsite maintenance and storage facility without interfering with the visitor experience.	Deliveries would be made to the offsite maintenance and storage facility without interfering with the visitor experience.
Interpretation	Interpretive programs would continue to consist primarily of the exhibits and activities within the Wright-Dunbar Interpretive Center and Aviation Trail Visitor Center and Museum. Interpretation would continue to focus on major park themes and significance. The extensive use of interactive displays and exhibits would continue.	Same as Alternative A.	Programming would be expanded into the community with an emphasis on educational outreach. Outreach would focus on regional, local, and neighborhood interpretive themes related to aviation, Dunbar and his literary contributions, and the amicable personal and professional relationships between Dunbar and the Wright brothers.
	Public access into the Wright-Dunbar Interpretive Center would continue to occur from two entrances, on the plaza and West Third Street.	Public access to the Wright-Dunbar Interpretive Center would occur only from the plaza to ensure that visitors viewed exhibits in the proper sequence.	Same as Alternative A.
	Backyard areas would remain undeveloped and would not be used for interpretation.	Historically compatible outbuildings would be reconstructed behind the cycle shop building. Interpretation would show how houses of that era required nearby support structures.	Same as Alternative B.
Visitor experience	The Wright-Dunbar Interpretive Center and Aviation Trail Visitor Center and Museum would continue to serve as a primary destination for the park and Aviation Trail visitors.	Same as Alternative A.	Additional emphasis would be given to educational outreach and community involvement. Visitor amenities would be enhanced through community partnerships.
	The primary visitor experience would continue to be indoors. Outdoor open space would remain undeveloped.	Same as Alternative A.	Outdoor activities, including those focused toward the community, would use the NPS' plaza and backyards, plus nearby lots owned by the city of Dayton or Wright Dunbar, Inc.

TABLE 2: FEATURES OF THE ALTERNATIVES FOR THE DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK GENERAL MANAGEMENT PLAN AMENDMENT (CONTINUED)

Site and Function	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Visitor experience (continued)	The National Park Service would continue to address issues affecting the quality of the visitor experience without the use of carrying capacity indicators and standards.	The National Park Service would implement carrying capacity indicators and standards, followed by management actions and ongoing monitoring. This would ensure the continued quality of the visitor experience, such as being able to hear and see exhibits and interpretive talks when The Wright Cycle Company building became crowded, and would protect the condition of this historic building. Indicators of visitor experience at the Wright-Dunbar Interpretive Center would address crowding in the entire facility and in individual areas such as the theater.	Same as Alternative B
Orientation	Information and orientation services would continue to be provided, including information on other park units, the Aviation Trail, and the National Museum of the U.S. Air Force.	Information, orientation, and way-finding would be expanded to enhance visitor access to all park units, the Aviation Trail, the National Museum of the U.S. Air Force, and other local and regional attractions.	Same as Alternative B, but there would be enhanced information and orientation that would include identification of programs, activities, and events sponsored by partners.
Education and outreach	The National Park Service and Aviation Trail, Inc. would continue to share the limited classroom space available at The Wright Cycle Company complex.	Same as Alternative A.	Up to an additional 20,000 square feet of classroom, presentation, and exhibit space would be available to the National Park Service and partner organizations through an NPS agreement with Wright Dunbar, Inc., to use all or part of the Pekin Theater, which is located outside park boundaries.
	The current approach of educational and outreach programming, with one education specialist on staff, would continue.	The park staff would be expanded to include four new employees providing education and outreach services.	The park staff would be expanded to include four new employees providing education and outreach services. Additional education and outreach staff would be provided by partners.
	Education and outreach would continue to focus on schoolchildren and their teachers.	Same as Alternative A.	Outreach partnerships would be used to develop a broad educational constituency. Programs for schoolchildren and teachers would be substantially expanded. Added emphasis would be given to community outreach and would include training of others to lead education and outreach activities for groups throughout the region.

TABLE 2: FEATURES OF THE ALTERNATIVES FOR THE DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK GENERAL MANAGEMENT PLAN AMENDMENT (CONTINUED)

Site and Function	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Community facilities	There would be no dedicated community facilities. The NPS' limited facilities would continue to be made available to community requests via the special use permit process.	Same as Alternative A.	The NPS' facilities would continue to be made available to community requests via the special use permit process. Through partnerships, the National Park Service could make facilities in the Pekin Theater and outdoor open space available for expanded community purposes.
Boundaries	The existing boundary would be maintained.	The boundary would be expanded to include the site for a new maintenance and storage facility.	Same as Alternative A.
Huffman Prairie Flying Field			
Management prescriptions	Management prescriptions would not be employed.	The Visitor Services/Interpretation zone would be applied to the northeast part of the flying field from just west of corner marker 6 on the north to just west of corner marker 1 on the south. The parking area and the Marl Road corridor from the north end of the bridge to corner marker 6 also would be within this zone. The Historic Landscape zone would be applied to the remainder of the flying field.	Same as Alternative B except that the portion of the Marl Road corridor within the Visitor Services/Interpretation zone would extend from Gate 18C to corner marker 6.
Visitor experience	The site would continue to provide a contemplative, low-intensity experience.	The site would provide an active experience of moderate intensity during summer weekends and holidays and a contemplative, low intensity experience at other times.	The site would provide an active experience of moderate to high intensity during summer weekends and holidays or when large community or school groups were present. The experience would be contemplative and low-intensity at other times.
	The National Park Service would continue to provide self-guiding interpretive programming, wayside exhibits, and occasional ranger-led tours and talks.	Same as Alternative A, but there would be an increased frequency of NPS-managed demonstrations, interpretive programs, and special events during higher-use periods.	Same as Alternative B, but schools and other regional partners would provide an increased frequency and variety of activities.
	There would not be any structures near the flying field.	Same as Alternative A.	A kiosk would expand the use of interpretive media and serve as a staging area for school and community groups.
	There would continue to be a low level of contact with NPS personnel except during planned events or programs.	There would be a moderate to high level of contact with NPS personnel, especially during weekends and holidays when local, regional, and national visitation is high.	Same as Alternative B, there would be a moderate to high level of contact with NPS personnel during weekends and holidays. School and community groups may have a higher level of contact with trip leaders or volunteers trained by the National Park Service or other partners.
	There would be no interpretation of the Marl Road corridor (the route the Wright brothers took on the interurban rail line from Dayton).	The historic significance of the Marl Road corridor would be interpreted through the development of such facilities as wayside exhibits.	Same as Alternative B.

TABLE 2: FEATURES OF THE ALTERNATIVES FOR THE DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK GENERAL MANAGEMENT PLAN AMENDMENT (CONTINUED)

Site and Function	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Visitor experience (continued)	The National Park Service would continue to address issues affecting the quality of the visitor experience without the use of carrying capacity indicators and standards.	The National Park Service would implement carrying capacity indicators and standards, followed by management actions and ongoing monitoring. This would ensure the continued quality of the visitor experience with regard to crowding at the exhibit area, development of social trails across the flying field, and occupancy limits for maintaining a suitable experience at the flying field.	Same as Alternative B
Visitor facilities	Facilities within the flying field would continue to include the walking trail, wayside exhibits, and reconstructed hangar and catapult.	Same as Alternative A, except that a dedicated storage facility for the replica Wright B Flyer may be added close to Huffman Prairie Flying Field.	Same as Alternative B.
	Facilities on adjoining U.S. Air Force lands would continue to include a replica of the Simms Station trolley platform, interpretive wayside exhibits, a 25-car parking lot and a pedestrian bridge. A portable toilet is on site from April through October.	Same as Alternative A, but facilities would be added to interpret the historic significance of the Marl Road corridor.	Same as Alternative B, but based on carrying capacity evaluation, parking may be expanded to accommodate up to 35 additional vehicles. A kiosk would be constructed to expand the use of interpretive media and additional portable toilets would provide sanitation services throughout the year.
Operational facilities	Storage for the replica Wright B Flyer would remain off-site within Building 145 on the Wright-Patterson Air Force Base active flight line.	A dedicated storage facility for the replica Wright B Flyer might be built close to Huffman Prairie Flying Field.	Same as Alternative B.
Wright Memorial			
Management prescriptions	Management prescriptions would not be employed.	The Visitor Services/Interpretation zone would be applied to the road corridors, parking areas, formal monument, interpretive center area, north overlook, and overlook walkway. The Historic Landscape zone would be applied to the rolling, lawn-like area on the east side of the memorial grounds and the tree-shaded area on the west side of the grounds that includes the picnic tables and prehistoric burial mounds.	Same as Alternative B, although the Visitor Services/Interpretation zone would be less extensive because all access would be via the existing road.
Visitor experience	The site would continue to provide an informal experience within a landscape designed by the Olmsted brothers firm.	The National Park Service would provide a range of outdoor interpretive programs and activities on weekends and holidays.	Same as Alternative B, but schools and other community partners would provide an increased frequency and variety of outdoor activities.

TABLE 2: FEATURES OF THE ALTERNATIVES FOR THE DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK GENERAL MANAGEMENT PLAN AMENDMENT (CONTINUED)

Site and Function	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Visitor experience (continued)	Visitors would have little or no outdoor contact with NPS personnel.	Visitors would have a moderate to high level of outdoor contact with NPS personnel.	Visitors would have a moderate to high level of contact with NPS personnel. School and community groups may have a higher level of contact with trip leaders or volunteers trained by the National Park Service or other partners.
	The National Park Service would continue to address issues affecting the quality of the visitor experience without the use of carrying capacity indicators and standards.	The National Park Service would implement carrying capacity indicators and standards, followed by management actions and ongoing monitoring. This would ensure the continued quality of the visitor experience with regard to availability of parking, development of social trails on the Wright Memorial grounds, the size of tour groups in the interpretive center, and crowding within the auditorium.	Same as Alternative B
Interpretation	NPS interpretation would continue to occur primarily within the interpretive center. Outdoor interpretation would continue to be limited to the existing plaques on the memorial and wayside exhibits on the grounds.	NPS interpretation would be expanded to include outdoor features such as the memorial, Indian mounds, Olmsted brothers landscape, and overlook. New wayside exhibits around the Wright Memorial would provide increased interpretation.	Interpretation would be the same as Alternative B except it would also include regional and school groups.
Visitor facilities	Parking would continue to be provided in the existing 46-vehicle lot west of the Huffman Prairie Flying Field Interpretive Center. Water and restrooms would continue to be available in the interpretive center.	In association with bridge construction, parking at the Wright Memorial could be expanded to accommodate up to 80 vehicles, based on carrying capacity evaluation The new access road from the parking lot to the bridge would involve burying the steam lines behind the interpretive center and moving the fence. Water and restrooms would continue to be available in the interpretive center.	Based on carrying capacity evaluation, parking at the Wright Memorial could be expanded to accommodate up to 100 vehicles. Visual screening of the steam lines could be provided but they would not be modified and the fence would not be moved. Water and restrooms would continue to be available in the interpretive center.
Transit and Access between Huffman Prairie Flying Field and the Interpretive Center at the Wright Memorial			
Route	Transit between units would continue to be via Ohio Highway 444. The highway would be crossed at the existing, unsignalized grade-crossing at Gate 16A.	Transit between units would be via a new bridge over the railroad tracks and Ohio Highway 444. During high-use periods, private vehicles would not be allowed on the bridge. Visitors would park at the interpretive center and take a shuttle to the flying field.	Transit between Huffman Prairie Flying Field and the Wright Memorial would be via a new road that would extend Kauffman Avenue to north of Ohio Highway 444, cross Miami Conservancy District lands, and connect with the Marl Road corridor near Gate 18C. Ohio Highway 444 would be crossed via an upgraded, at-grade intersection at Kauffman Avenue.

TABLE 2: FEATURES OF THE ALTERNATIVES FOR THE DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK GENERAL MANAGEMENT PLAN AMENDMENT (CONTINUED)

Site and Function	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Mode	Most visitors would continue to use private vehicles to travel between the interpretive center and the flying field. During high-use periods, a rubber-tired shuttle operated by a partner (such as the Greater Dayton Regional Transit Authority) could be available to move visitors between the two sites.	A rubber-tired shuttle would be available to move visitors between the two sites. During high-use periods, visitors would be required to take the shuttle.	Same as Alternative A.
	This alternative would not have the ability to accommodate a steel-railed heritage trolley between the flying field and interpretive center.	The bridge could accommodate a steel-railed heritage trolley. The trolley, including its storage and maintenance facilities, would be provided by others.	Same as Alternative A.
Access gate	Visitors to Huffman Prairie Flying Field would continue to enter Wright-Patterson Air Force Base via existing Gate 16A.	Visitor vehicular access to the flying field would be provided via the new bridge. A new gate to the base would be constructed in association with the bridge.	Visitors to the flying field would enter the base via existing Gate 18C. This gate would be modified to accommodate its new function.
Sequencing	Visitors could continue to visit Huffman Prairie Flying Field and interpretive center in whatever order they chose.	The road system would be designed to take the visitor to the Huffman Prairie Flying Field Interpretive Center first. From there, visitors would travel via the new bridge to the flying field.	Same as Alternative A.
Interpretation	There would not be any interpretation on the route between the Wright Memorial and Huffman Prairie Flying Field.	Oral interpretation would be provided during shuttle trips across the bridge from the interpretive center to the flying field.	Interpretive wayside exhibits might be added along the historic Marl Road corridor.

- Interpretation at Huffman Prairie Flying Field would remain as it is today, with the existing replica hangar, trail, and wayside exhibits. Restrooms and other services would be provided at the Huffman Prairie Flying Field Interpretive Center at the Wright Memorial. Visitors would continue to gain access to Huffman Prairie Flying Field via Gate 16A.
- The National Park Service would continue to use the limited storage area located in the basement of The Wright Cycle Company building and space not designated for other purposes (but had not been designed for storage) in the basements of the Wright-Dunbar Interpretive Center and Aviation Trail Visitor Center and Museum. There would not be any designated space for maintenance.
- The National Park Service would continue to address issues affecting the quality of the visitor experience without the use of carrying capacity indicators and standards.
- Activities and management of park resources at the Paul Laurence Dunbar State Memorial and the Wright Brothers Aviation Center at Carillon Historical Park would remain as they are currently.

The Wright Cycle Company Complex

The map entitled Park Units and Existing Conditions at The Wright Cycle Company Complex (page 3) shows the locations of the five buildings within the national park boundary at this site. The property at this site totals 0.9 acres. Facilities include the following:

- The Wright-Dunbar Interpretive Center is located at 1058-1062 West Third Street. This building, which was built in 1890, was known as the "Hoover Block" after its builder, Zachary T. Hoover. From 1890 until 1895, the Wright brothers leased space on its second floor for a print shop (NPS 1997c). The Hoover Block, Wright Cycle Company building, and Wright Company factory buildings still stand in their historic locations and have had minimal alterations. The interpretive center, which occupies the entire building, was completed and opened to the public on June 27, 2003. This building is listed in the West Third Street Historic District National Register of Historic Places nomination as a contributing structure (Gannon 1987).
- The Aviation Trail Visitor Center and Museum is located in a structure at 1054-1056 West Third Street called the "Setzer Building." The visitor center opened to the public on June 27, 2003. The Setzer Building was constructed in 1906, according to the historic structure report for the Hoover Block (Quinn Evans/Architects 1999). However, the facade that is on the building today was completed in 1922 and is all that remains of the original building. The Setzer Building is listed in the West Third Street Historic District National Register of Historic Places nomination form as a contributing structure (Gannon 1987).
- The Wright Cycle Company building at 22 South Williams Street housed the Wright brothers' bicycle business from 1895 until 1897. This building is a National Historic Landmark and is a contributing structure to the West Third Street Historic District. This facility has been open to the public since 1988, originally under the management of Aviation Trail, Inc. and under NPS management once the property was transferred to the National Park Service in 1995.

The Wright-Dunbar Interpretive Center (left) and the Aviation Trail Visitor Center and Museum (right), which opened in June 2003, provide orientation and information for all four units of Dayton Aviation Heritage National Historical Park, as well as the Aviation Trail. The open space in the foreground is the Wright-Dunbar Plaza.

The interior of The Wright Cycle Company building (left) recently was rehabilitated to accommodate the installation of permanent exhibits. The house at 30 South Williams Street (far right) has been rehabilitated for use as park headquarters. The center house, located at 26 South Williams Street, is vacant.

- The two residential structures located at 26 and 30 South Williams Street are identified as contributing structures to the West Third Street Historic District and were added to the park as a part of the 2000 legislation. Neither structure has a known connection to the Wright brothers, Paul Laurence Dunbar, or the invention of flight. Both are owned by the National Park Service. The building at 30 South Williams Street has been rehabilitated and is used as offices for the park headquarters. The house at 26 South Williams Street had the exterior repainted in 2003, but remains vacant and in general disrepair. The NPS currently uses the interior for temporary storage.
- The Wright-Dunbar Plaza is a brick and landscaped open space between the Wright-Dunbar Interpretive Center and The Wright Cycle Company building.

In Alternative A, the Wright-Dunbar Interpretive Center would continue to provide orientation and information for Dayton Aviation Heritage National Historical Park. This building serves as the primary anchor for the park, and is the only facility that communicates the story of all four park units. Most of the information relates to the invention and early development of controlled, powered flight. However, about a quarter of the exhibit space in this building is dedicated to Paul Laurence Dunbar, his importance as a literary figure and an African-American, and the personal and business relationships between Dunbar and the Wright brothers. Existing uses of this building would continue under Alternative A.

The Aviation Trail Visitor Center and Museum would continue to present information on all sites along the Aviation Trail. These are sites throughout the Miami Valley and surrounding areas that were significant to the invention and development of aviation. Museum exhibits include a wide variety of aviation-related artifacts, including the Dave Gold Parachute Collection. This building is owned by Aviation Trail, Inc., but is managed and operated by the National Park Service. It was reconstructed at the same time as the Wright-Dunbar Interpretive Center, and shares some components, including restrooms, elevators, stairs, and mechanical systems.

The historical importance of the building at 22 South Williams Street was lost for many years until Aviation Trail, Inc. established around 1981 that it was the location of The Wright Cycle Company business from 1895

to 1897. Aviation Trail, Inc. purchased and rehabilitated the structure and opened the building to the public in 1988. The National Park Service recently installed permanent exhibits on the first floor of The Wright Cycle Company building to replace temporary exhibits installed by Aviation Trail, Inc. when it first opened the building. The second floor of this building will continue to be used for offices for the parks maintenance staff under Alternative A.

Currently, NPS administrative space is split between three facilities. The building at 30 South Williams Street serves as park headquarters with offices for the park superintendent and support staff; 22 South Williams Street (second floor) houses offices for the Maintenance Division; and the Wright-Dunbar Interpretive Center houses a Maintenance Division support office in the basement and Education and Resources Management offices on the third floor. These uses would continue under Alternative A.

The basement of the historic bicycle shop building currently serves as the primary storage facility for the complex. Some NPS storage also occurs in the basements of the Wright-Dunbar Interpretive Center and Aviation Trail Visitor Center and Museum, although the space was not designed for this purpose, and storage here is shared with Aviation Trail, Inc. Alternative A would involve the continued use of available space within the building basements for storage and short-term leases for offsite storage.

(Throughout this document, discussions of "storage" refer to maintenance materials, supplies, and equipment; interpretive supplies and equipment; and administrative supplies. Storage addresses the needs both of the National Park Service and partners involving the effective operation of the park.)

The house at 26 South Williams Street is in poor condition and is locked and unused. Alternative A would continue current management practices of ensuring safety, but would not implement any uses of this building.

As under current conditions, The Wright Cycle Company complex would continue primarily to provide an indoor experience. There would not be any defined uses of the Wright-Dunbar Plaza, backyards of the bicycle shop and two houses, or other outdoor spaces. It also would not include any educational outreach facilities, although the 71-seat theater in the Wright-Dunbar Interpretive Center could be used for selected purposes. Groups or individuals could continue to apply for a special use permit to use park facilities, including the auditorium and plaza, for functions such as community meetings and concerts.

Alternative A would continue current levels of education and outreach. One educational specialist would provide both onsite and offsite school programs. The primary focus would continue to be schoolchildren and their teachers. In addition to providing personal interactions, the National Park Service would continue to distribute educational information through a variety of media, such as the park website, teacher packets, and materials given at special events, including workshops, festivals, science fairs, educational meetings and conferences, and meetings of partners. Together, the National Park Service and U.S. Air Force would continue an education-oriented computer list-serve provided by the Wright-Patterson Air Force Base Educational Outreach Office.

The concept of carrying capacity for visitor use was still under development by the National Park Service when the park's general management plan was being prepared (NPS 1997c). Moreover, the 1997 plan focused primarily on the construction of facilities at The Wright Cycle Company complex rather than their operation. As a result, consideration of carrying capacity was not included in

the general management plan. Alternative A would not include any structured efforts to monitor visitor use and experience relative to carrying capacity or to base management decisions on carrying capacity studies.

The Wright Cycle Company complex is the center for NPS operations for the entire park, including maintenance functions. However, it does not contain any maintenance facilities, and storage is limited to the spaces discussed previously. This situation would continue under Alternative A.

The park does not have a designated location for the delivery of supplies, which typically are received three or four times a day. Often, deliveries involve large quantities of materials needed for park operation. Delivery trucks typically pull up to the Wright-Dunbar Interpretive Center or the nearby headquarters building at 30 South Williams Street to offload materials. These deliveries potentially can disrupt visitor experiences.

The main entrance to the Wright-Dunbar Interpretive Center is from the Wright-Dunbar Plaza on the southwest side of the building. To accommodate pedestrian traffic on West Third Street, there also is an entryway on this important Dayton thoroughfare.

Huffman Prairie Flying Field

As shown on the Park Units and Existing Conditions at The Wright Cycle Company Complex map (page 3), Huffman Prairie Flying Field is about eight miles northeast of The Wright Cycle Company complex. The U.S. Air Force owns and maintains Huffman Prairie Flying Field, which is within Wright-Patterson Air Force Base, and provides law enforcement and security. Interpretive services, including staffing and exhibits, are provided by the National Park Service. Huffman Prairie Flying Field is a National Historic Landmark.

The Existing Conditions at Huffman Prairie Flying Field and Wright Memorial map (page 9) illustrates the features in the vicinity of the flying field. The park boundary includes only the 84.4 acres within the flying field's original property line. It does not include adjoining lands that are associated with the history of the flying field, such as the bed of the Dayton, Springfield, and Urbana Interurban Rail Line, which the Wrights used for travel to the flying field, the location of the rail line's Simms Station platform, or Marl Road. (Note: The Marl Road alignment is parallel to, and only a few feet from, the alignment of the former rail line.)

The U.S. Air Force's understanding of the history and significance of Huffman Prairie Flying Field began in the late 1970s, when it acquired the lands containing the Wright Memorial. By the late 1980s, with interest in a national park growing in the Dayton area, the U.S. Air Force undertook steps to interpret the site and open it to the public. In 1990, a replica of the Wright brothers' 1905 hangar was constructed at its historic location near the east edge of the flying field. By June 1991, a self-guided walking trail with accompanying brochure had been created and the site was opened to the public.

Visitor facilities include a walking trail with wayside exhibits, a reconstructed hangar that contains exhibits, and a reconstructed catapult-and-rail launching system. There also is a paved parking lot for 25 vehicles and a replica of the Simms Station platform just north of the flying field on U.S. Air Force property outside the park

Interpretive facilities at Huffman Prairie Flying Field include a reconstructed hangar and catapult-and-rail launching system.

A parking lot north of Huffman Prairie Flying Field provides space for 25 vehicles, including spaces designed for visitors with impaired mobility.

boundary. There are no benches, picnic tables, water, or electricity. The base provides a portable toilet at the site from April through October, and during special events.

A supplemental parking lot for 12 cars is located on Pylon Road. Both the lot and the road will be removed when Marl Road is upgraded. Therefore, this parking facility was not included in any of the alternatives.

Under Alternative A, activities at Huffman Prairie Flying Field would continue to be low-intensity and would encourage the visitor to visualize activities at the field during the time when the Wright brothers first perfected controlled flight and then trained pilots at the world's first flying school. There are ranger-led talks during the summer, and ranger-led tours can be requested. A few special events, such as kite day, would continue to be held. However, most of the time visitors would experience the site by walking a self-guided trail and viewing wayside exhibits.

As at The Wright Cycle Company complex, Alternative A would not include any additional efforts to monitor carrying capacity for visitor use and visitor experience. Carrying capacity studies would not be conducted to provide a basis for management decisions.

A museum-quality replica of the 1911 Wright B Flyer (civilian model) has been made available to the National Park Service for display at Huffman Prairie Flying Field. This fully operational aircraft is owned, managed, and maintained by Wright "B" Flyer, Inc., a private, nonprofit organization. The memorandum of understanding between the National Park Service and Wright "B" Flyer, Inc. defines conditions for the aircraft to be exhibited at Huffman Prairie Flying Field between May 15 and October 15 each year (National Park Service and Wright "B" Flyer, Inc. 2001).

From May to October each year, this aircraft is stored in Building 145, a hangar close to the Wright-Patterson Air Force Base flight line, about a mile from Huffman Prairie Flying Field. During high-visitation periods, usually summer weekends, the replica Wright B Flyer is exhibited at Huffman Prairie Flying Field. At the flying field, it is protected from sunlight and rain by a large tent. When its engine is running, the Flyer gives visitors an authentic experience of the sights, sounds, and smells that occurred when the Wright brothers used the field as the world's first flight school.

The replica Wright B Flyer usually is towed from its hangar to the flying field in the morning and returned in the late afternoon.

Volunteers from Wright "B" Flyer, Inc. with the assistance of NPS staff, tow the aircraft with a motorized vehicle. The trip takes about 30 minutes in each direction. Because the route crosses the flight line, moving the replica Wright B Flyer requires close coordination with U.S. Air Force operations personnel so that the replica is moved when no aircraft are expected to be arriving or departing (Ferguson and Perdue 2003). These conditions would continue under Alternative A.

Regardless of the alternative, the U.S. Air Force intends to remove and mitigate the former site of the Combat Arms Training and Maintenance facility, which is near the southwest boundary of Huffman Prairie Flying Field by corner marker 4. Under Alternative A, no further action would be taken at this site.

Adjacent to Huffman Prairie Flying Field on the southeast is a 109-acre area of remnant prairie. This natural resource is the largest remaining stand of native tall-grass prairie in Ohio. Because of its historic significance and the rarity of native prairies in Ohio, Huffman Prairie was dedicated as an Ohio Natural Landmark by the Ohio Natural Areas Council in 1986 (Aullwood Audubon Center 2004).

The remnant prairie is on U.S. Air Force land outside the national park boundary. Wright-Patterson Air Force Base, with the assistance of Five Rivers MetroParks, and the Ohio Chapter of the Nature Conservancy, has agreed to maintain and protect this special prairie ecosystem (Aullwood Audubon Center and Farm 2004). The prairie is interpreted in existing wayside exhibits in the flying field area. Access to the prairie can be obtained from Huffman Prairie Flying Field. A self-guided trail through the natural prairie is keyed to a brochure that is available at the trailhead.

East of the flying field are hazardous cargo pads that are used for loading ordnance onto military aircraft. Loading of munitions on the hazardous cargo pads requires closure of Huffman Prairie Flying Field only when the quantity of munitions reaches a certain threshold. This has averaged twice a year (Ferguson and Perdue 2003).

Huffman Prairie Flying Field is accessed by entering Wright-Patterson Air Force Base from Ohio Highway 444 via Gate 16A. There are no traffic signals at this intersection, but a left-turn lane allows east-bound vehicles (including visitors coming from

Visitors with impaired mobility can access resources at Huffman Prairie Flying Field and throughout the park. The white tent in the background protects the replica Wright B Flyer.

The U.S. Air Force will be removing the former Combat Arms Training and Maintenance facility, at left. Corner marker 4 for Huffman Prairie Flying Field is at the right below white road sign.

the Huffman Prairie Flying Field Interpretive Center at the Wright Memorial) to stop and wait safely until traffic clears. West-bound Ohio Highway 444 does not include either a deceleration or acceleration lane at Gate 16A. Visitors exiting from Gate 16A and turning left (east) onto Ohio Highway 444 can pause in the wide median area after crossing the west-bound lane and allow east-bound traffic to clear before entering traffic.

The U.S. Air Force recently improved visitor access and security by fencing off the area that includes Huffman Prairie Flying Field and upgrading Gate 16A to serve as an unmanned entry point. Visitors can now access the flying field without going through base security. Huffman Prairie Flying Field normally is open five days a week. However, the U.S. Air Force occasionally closes access to Huffman Prairie Flying Field during normal park operating hours to accommodate security or safety concerns associated with its mission as an important component of the U.S. Department of Defense.

Gate 16A and the route between the Wright Memorial and Huffman Prairie Flying Field are shown on the Existing Conditions at Huffman Prairie Flying Field and Wright Memorial map (page 9). The circuitous route from the gate to the flying field parking lot involves about eight turns and leads past the base stables and golf course clubhouse. Although the route from the gate to the flying field is well marked, it is confusing to some visitors. Some visitors also find the drive from the Wright Memorial gate to Gate 16A to be confusing or inconvenient.

Plans are underway to upgrade Marl Road, which is west of the flying field, from Hebble Road to the flying field parking lot, This action would involve constructing a new lane, separated from the existing lane by a median to create a boulevard, and upgrading the road surface to handle an increased volume of traffic. Marl Road improvements would be separately funded and would proceed regardless of alternative selected.

The Wright Memorial and the Huffman Prairie Flying Field Interpretive Center

Huffman Prairie Flying Field is within the 100-year floodplain of the Mad River (Federal Emergency Management Agency 1981). As a result, it is not a suitable location for a permanent structure, such as an interpretive center. Therefore, in the park's

Gate 16A provides access to Huffman Prairie Flying Field from Ohio Highway 444 without the need to pass through military checkpoints.

Security fencing separates the flying field area from operational parts of Wright-Patterson Air Force Base and signage facilitates wayfinding.

establishing legislation (Public Law 102-419), Congress stated that the National Park Service "may provide interpretation of Huffman Prairie Flying Field on Wright Brothers Hill, Wright-Patterson Air Force Base." The intent to implement this recommendation was included in the park's general management plan (NPS 1997c)

As shown in the Existing Conditions at Huffman Prairie Flying Field and Wright Memorial map (page 9), the Huffman Prairie Flying Field Interpretive Center and an expanded 46-vehicle parking lot were constructed just south of the Wright Memorial. The interpretive center opened to the public on December 17, 2002.

The Huffman Prairie Flying Field Interpretive Center and the formal monument commemorating the Wright brothers are within the 27-acre Wright Memorial. None of these facilities are within the national park boundary.

The memorial was constructed on Miami Conservancy District property by the city of Dayton and dedicated on August 19, 1940. Both the park and the memorial were designed by the Olmsted brothers firm. On September 9, 1978, the Miami Conservancy District transferred the Wright Memorial to the U.S. Air Force as part of the "75th Anniversary of Powered Flight" commemoration (Walker and Wickam 1986). Deed restrictions stipulate that it must stay open as a public park (Ferguson and Perdue 2003).

During the construction of the park and formal monument at the Wright Memorial, six mounds attributed to the Early Woodland culture were discovered on the west side of the site. The mounds range from 20 to 50 feet in diameter and are two to four feet high. In August 1939, a shallow test pit was dug in one of the smaller mounds by Dr. Henry P. Shetrone, director of the Ohio State Archaeological and Historical Society and professor of archeology at The Ohio State University. The excavation confirmed that these are burial mounds. Based on this discovery, a tablet was placed at the memorial describing the mounds' significance (Honious 2003).

In February 1974, the Wright Brothers Memorial Mound Group was listed in the National Register of Historic Places. Boundaries of the mound group were not specified in the listing. The register form also did not specifically include the Wright Memorial or the designed landscape of the Olmsted brothers firm. Nevertheless, the U.S. Air Force manages the entire 27-acre Wright Memorial as a National Register-listed site (Ferguson and Perdue 2003).

The Huffman Prairie Flying Field Interpretive Center was built at the Wright Memorial just south of the formal monument.

Six Indian burial mounds were the basis for listing the area of the Wright Memorial in the National Register of Historic Places.

Regardless of the alternative selected, the Air Force plans to amend the National Register of Historic Places nomination for the Wright Brothers Memorial Mound Group to include the entire Wright Memorial. The revised nomination would recognize the area's significance in the commemoration of the Wright brothers and would specifically incorporate the historic landscape designed by the Olmsted brothers firm (Ferguson and Perdue 2003).

The U.S. Air Force owns the 27-acre Wright Memorial property. Although this area is part of Wright-Patterson Air Force Base and is surrounded by a chain-link fence with a gate at the entry road, it is not within the secured portion of the military installation. As a result, visitors can enter and leave the area without restrictions during normal hours of park operation.

The Wright Memorial and Huffman Prairie Flying Field Interpretive Center within its grounds normally are open seven days a week. However, the U.S. Air Force reserves the right to close the Wright Memorial, including the interpretive center, during normal park operating hours to accommodate security or safety concerns associated with its military mission. This condition would continue under Alternative A.

The U.S. Air Force manages the Wright Memorial and provides maintenance, security, law enforcement, and emergency services. It also owns the Huffman Prairie Flying Field Interpretive Center, maintains the building and its infrastructure, and provides custodial services and all utilities except communications for the building. Interpretive services within the building, including staff and displays, are provided by the National Park Service, which also provides onsite communications.

Operation of the Huffman Prairie Flying Field Interpretive Center is defined in a memorandum of agreement between the U.S. Air Force and National Park Service dated August 5, 2002. This agreement is reviewed on a scheduled basis.

The interpretive center has electricity, water, and restrooms. When the building is closed, these facilities are not available elsewhere on the site. Other amenities at the Wright Memorial include several benches and picnic tables and a 46-vehicle parking lot that can accommodate tour buses. There is no overflow parking at the Huffman Prairie Flying Field Interpretive Center.

Under Alternative A, the U.S. Air Force would continue to allow all recreation activities that historically have occurred at the memorial park. In addition to visiting the NPS interpretive center, popular activities include visiting the memorial; picnicking; viewing the Mad River valley, Huffman Dam, and Huffman Prairie Flying Field from the overlook; and tossing a Frisbee or baseball. Although some people have advocated ending horseback riding and winter sledding in the park, these activities continue to be allowed.

As at The Wright Cycle Company complex, Alternative A would not include any additional efforts to monitor carrying capacity for visitor use and visitor experience. Carrying capacity studies would not provide a basis for management decisions.

There is no direct access to Wright-Patterson Air Force Base from the Wright Memorial road. The base's Area B, which is immediately behind the interpretive center, is separated from the park by a security fence. Steam lines and storage tanks on the secured side of the fence may have an adverse aesthetic effect for some visitors who find them out of character with the commemorative and recreational nature of the site.

Steam lines and storage tanks behind the interpretive center are visually apparent and may affect the quality of some visitors' experience.

Huffman Prairie Flying Field and the Wright-Patterson Air Force Base runway (on right) are visible from the Wright Memorial overlook.

As currently occurs, visitors would find their own way between the two sites. The National Park Service prefers that visitors to the easternmost unit of the park go to the interpretive center at the Wright Memorial first and then travel to Huffman Prairie Flying Field. However, Alternative A would not include any controls over the visitation sequence.

Travel by automobile or shuttle from the Wright Memorial to Huffman Prairie Flying Field takes 15 to 20 minutes and covers a distance of more than five miles. Visitors exit the Wright Memorial grounds, travel east on Ohio Highway 444, enter Wright-Patterson Air Force Base at Gate 16A, and make several turns as they travel through the areas of the golf course and stables before entering the Huffman Prairie Flying Field parking lot. As a result, the National Park Service has limited ability to integrate experiences at the flying field and the interpretive center at the Wright Memorial. This situation would continue under Alternative A.

The Wright-Patterson Air Force Base (2001b) general plan has zoned the lands at the Wright Memorial for outdoor recreation. Lands adjacent to the entrance of this community park and lands south of the Wright Memorial are zoned for development. However, no specific developments currently are planned (Ferguson and Perdue 2003).

COSTS

Costs to the National Park Service for implementing Alternative A are shown in Table 3. All life-cycle costs were calculated for the next 20 years (through the year 2025) using a discount rate of 7 percent. These values should be used only for comparing the alternatives, not for budget projections.

The NPS' current (FY2004) annual budget for Dayton Aviation Heritage National Historical Park is $1.6 million. It is assumed that this level of funding, with increases for inflation to maintain funding at year 2004 levels, would continue under Alternative A.

As shown in Table 3, the National Park Service would not accrue any additional capital or operation and maintenance costs if Alternative A were implemented. Therefore, over 20 years, the total life-cycle cost to the National Park Service for operating Dayton Aviation Heritage National Historical Park would be about $15 million (year 2004 dollars).

TABLE 3: ESTIMATED COSTS OF IMPLEMENTING THE ALTERNATIVES FOR THE DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK GENERAL MANAGEMENT PLAN AMENDMENT (YEAR 2004 DOLLARS)

Category	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
One-time capital costs	Not applicable	$16 million to $17 million	$3 million to $4 million
Annual operating costs	$1.6 million	$1.8 million to $1.9 million	$1.9 million to $2.2 million
Present-worth, life-cycle operating costs for 20 years	$15 million	$20 million to $21 million	$20 million to $23 million
Present-worth, total life-cycle costs through 2025	$15 million	$35 million to $38 million	$23 million to $27 million

Table 3 shows only the costs that would be incurred by the National Park Service. This is a typical approach for NPS planning documents. The other legislated partners, including Wright-Patterson Air Force Base, the Ohio Historical Society, Carillon Historical Park, and Aviation Trail, Inc., also would sustain costs associated with operating their respective park units. However, their costs were not included in this analysis.

ALTERNATIVE B

This section describes Alternative B, including the concept that defines the alternative, its specific features, and costs.

CONCEPT

The desired future condition under Alternative B would be an enhanced experience for the traditional visitor to national parks. The target visitors would travel to the park from outside the near-park community, although many would be from Dayton and the surrounding area. Most visitors would be families (usually traveling by automobile) or tour groups. Visitors would expect an enjoyable, primarily contemplative experience that would increase their knowledge of history, literature, and/or aviation.

This alternative would acknowledge and better accommodate the changes that had occurred since preparation of the park's general management plan (NPS 1997c). In particular, it would take advantage of opportunities created by the construction of the Huffman Prairie Flying Field Interpretive Center at the Wright Memorial. It also would improve park operations at Huffman Prairie Flying Field and The Wright Cycle Company complex.

The features of Alternative B are summarized in Table 2 on page 43. More detailed descriptions of the components of this alternative are provided below.

FEATURES

Many of the features of Alternative B would be the same as Alternative A. This would occur because, within the guidance of the current general management plan (NPS 1997c), most aspects of the park are operating well and are effectively fulfilling the mission of Dayton Aviation Heritage National Historical Park. Alternative B primarily would enhance interpretation and park operations by implementing the following measures:

- The park boundary would be enlarged at The Wright Cycle Company complex, and a dedicated storage and maintenance facility would be constructed within the expanded boundary. Administrative and operations space for legislated partners would be provided within The Wright Cycle Company complex boundaries.
- The National Park Service would better integrate the visitor experience at Huffman Prairie Flying Field and the interpretive center at the Wright Memorial. This would be accomplished primarily by constructing a bridge over Ohio Highway 444 that would enable visitors to travel from the interpretive center to the flying field in about five minutes.
- Visitors could leave their vehicles at the interpretive center and take a multi-passenger shuttle to the flying field. (The shuttle service would be provided by an entity such as the Greater Dayton Regional Transit Authority. The feasibility of such a system is currently being investigated by the Miami Valley Regional Planning Commission). Therefore, the parking area at the Wright Memorial would be expanded. The existing fence would be moved to the south and the steam lines behind the interpretive center would be buried to avoid conflicts with the new road from the interpretive center to the bridge. This would increase the area available for parking and improve the site's aesthetics.
- A small hangar that would house the replica Wright B Flyer would be built

near Huffman Prairie Flying Field. This structure would allow the National Park Service to display the replica Wright B Flyer more frequently.

- Carrying capacities, with associated indicators and standards, would be used to ensure a high degree of resource preservation and a consistently high-quality visitor experience. The National Park Service would implement a monitoring plan, including directives for consequent management actions, should monitoring expose unacceptable changes to visitor experiences and resource preservation.
- Activities and management of park resources at the Paul Laurence Dunbar State Memorial and the Wright Brothers Aviation Center at Carillon Historical Park would not change from their current status.

Management Zones

Both of the management prescriptions that were described at the beginning of this chapter would be applied to park areas to create management zones. The map entitled Alternative B, Wright Memorial and Huffman Prairie Flying Field (Page 63), shows where the management zones would be located in these units. Briefly:

- The Wright Cycle Company complex would be entirely within the Visitor Services/Interpretation zone.
- At Huffman Prairie Flying Field, the Visitor Services/Interpretation zone would be applied to the northeast part of the flying field from just west of corner marker 6 on the north to just west of corner marker 1 on the south. The parking area and the Marl Road corridor from the north end of the bridge to corner marker 6 also would be within this zone. This zone would include the reconstructions of the 1905 hangar, catapult-and-rail launch system, and Simms Station platform; and most of the exhibits and walking paths. It may be expanded to include the area outside the flying field boundary that was selected by a siting study to support the new hangar for the replica Wright B Flyer.
- The remainder of the flying field would be within the Historic Landscape zone.
- At the Wright Memorial, the Visitor Services/Interpretation zone would be applied to the road corridors, parking areas, formal monument, interpretive center area, north overlook, and overlook walkway.
- The Historic Landscape zone within the Wright Memorial would include the rolling, lawn-like area on the east side of the memorial grounds and the tree-shaded area on the west side of the grounds that includes the picnic tables and prehistoric burial mounds.

The bridge between the Wright Memorial and Huffman Prairie Flying Field would not be zoned for management because it would not be within the boundaries of the park.

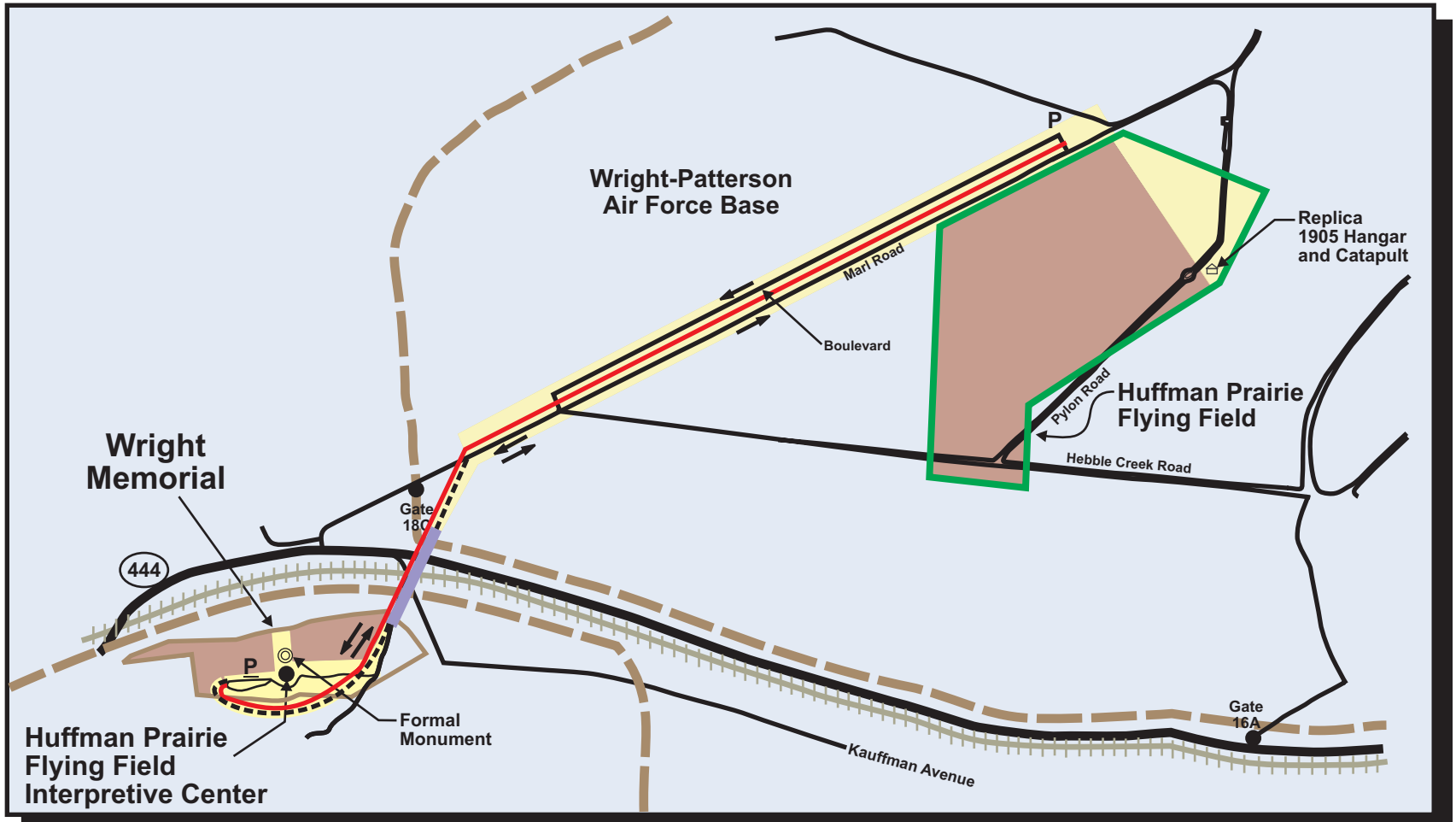
The Wright Cycle Company Complex

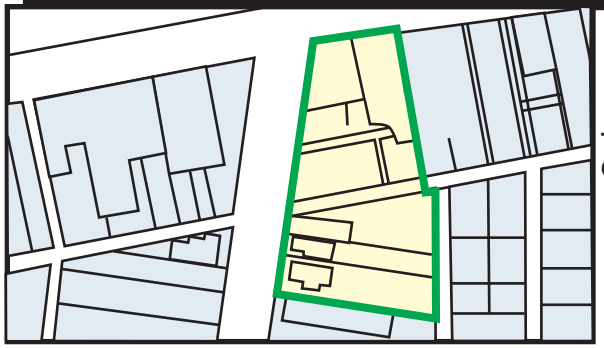
Most facilities at The Wright Cycle Company complex would be managed in the same manner as in Alternative A. Differences are highlighted in Table 2 and described in more detail below.

The residential structure at 26 South Williams Street currently is vacant, is in general disrepair, and is being used to meet temporary park storage requirements. Under Alternative B, both the interior and exterior of this house, including the landscaping, would be rehabilitated to an appearance consistent with the neighborhood in the 1890s when the Wright brothers lived and worked nearby.

Dayton Aviation Heritage National Historical Park
Alternative B

National Park Service
U.S. Department of the Interior
Ohio
November 2005





The Wright Cycle
Company Complex

Legend

- Existing Park Boundary
- Railroad
- US Air Force Boundary
- Proposed New Road Alignment
- Proposed Bridge (designed to accommodate trolley)
- Visitor Access
- P Parking
- Visitor Services/Interpretation Zone
- Historic Landscape Zone

N

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Because of the location of this building within a national park adjacent to a National Historic Landmark property and its status as a contributing element of the West Third Street Historic District, a historic structures report would be prepared prior to the development of construction documents. An archeological investigation may be conducted concurrently with the historic structures report to identify belowground evidence of the construction, modifications, and uses of this property over time.

The historic structures report would be based on documentary research and physical examination, and would document the evolution of this historic structure, its current condition, and any causes of deterioration. The historic structures report would serve as the primary guide to treatment and use of the building. Rehabilitation would be done in a manner that would ensure compatibility of this historic home with the surrounding landscape and historic districts.

After rehabilitation, the building at 26 South Williams Street would be adaptively used for administrative and other purposes. The house could provide office space for NPS personnel and/or park partners. The larger rooms could be used as small conference rooms for meetings or community functions.

Historically compatible outbuildings would be reconstructed in the yard behind The Wright Cycle Company building at 22 South Williams Street, adjacent to the Wright-Dunbar Plaza. Interpretation would show how houses of that era did not function by themselves but required nearby support structures. Reconstruction would conform with *The Secretary of the Interior's Standards for the Treatment of Historic Properties: with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (The Secretary of the Interior 1995a).

Alternative B would involve expanding the boundaries at The Wright Cycle Company complex and constructing a new storage and maintenance facility within the expanded boundary to meet park and partner needs. This facility would include a single-story, 5,000- to 6,000-square-foot building and a parking pad for a total size of about 7,000 to 8,000 square feet.

The National Park Service may continue to store some bulky or frequently used items in the basements of the historic buildings at 22, 26, and 30 South Williams Street. The NPS has found that space in historical buildings is better maintained when it is adaptively used. Storage of commonly used items would ensure that park staff would frequently enter the basements of these buildings and that problems would be spotted and repaired promptly.

Park staff have noted that activities on the second floor of The Wright Cycle Company building at 22 South Williams Street can disrupt visitor experiences on the first floor. Foot traffic to second-floor offices also has produced noticeable wear and tear in this historical building. Therefore, Alternative B would stipulate that the second floor would only be used for purposes that involved relatively little foot traffic and would seldom create noise during visitor-use hours. Use also would not involve heavy objects that could cause structural stresses. As a result, this space may be largely unused, or could be used for storage of bulky, lightweight materials such as the paper products to be used in park restrooms.

Alternative B would stress increased cooperation and coordination among the park's partners. To further this goal, the National Park Service would make administrative and operations space for park partners available within The Wright Cycle Company complex. Partner administrative and/or operations space could be accommodated in the rehabilitated house at 26

South Williams Street or other locations within The Wright Cycle Company complex. At their request, partners also could share space in the new storage and maintenance facility.

The Wright Cycle Company complex would continue to provide a primarily indoor experience, similar to Alternative A. To ensure that all park visitors viewed the exhibits in the Wright-Dunbar Interpretive Center in the proper order, visitors would enter the interpretive center only via the plaza entrance. The door to West Third Street would be closed to visitor entry.

Alternative B would include the use of carrying capacity, tied to management prescriptions, as a management tool. The indicators and standards developed to ensure the quality of the visitor experience and protection of resources at The Wright Cycle Company complex are as follows:

Wright-Dunbar Interpretive Center. The Wright-Dunbar Interpretive Center has an occupancy limit of 758 people. The current maximum use of the building is well under the maximum capacity and there is adequate space to accommodate a substantial increase in visitation without adversely impacting the resources.

Indicator: The number of people in the Wright-Dunbar Interpretive Center.

Standard: The total number of visitors and staff does not exceed 90 percent of the facility's maximum capacity (682 people at one time).

Management Action: The National Park Service would restrict the number of visitors allowed entrance at one time, and would develop a reservation system or a system that would guarantee entrance at a later time for visitors who were turned away.

At the Wright-Dunbar Interpretive Center theater, the maximum number of seats available is 75. The auditorium shows the park film, which is about 20 minutes long, on a regularly scheduled basis. The auditorium also is used for lectures or presentations, currently at a frequency of once or twice a month. Demand may exceed capacity in the future, based on visitation projections.

Indicator: The number of people in the Wright-Dunbar Interpretive Center theater.

Standard: The total number of people in attendance at the theater does not exceed 83 (10 percent over the seating capacity could be accommodated in standing areas).

Management Action: NPS staff would restrict the number of people allowed into the theater for any performance, and would develop a reservation system or develop a system that would guarantee entrance at a later time for visitors who were turned away.

The condition of historic facilities and landscapes are vulnerable to wear and deterioration over time, potentially diminishing the visitor experience. Implementation of the following indicator would ensure that all features and facilities would be consciously monitored and repairs and maintenance would be kept current.

Indicator: The number of visitors who are dissatisfied with the condition of facilities or exhibits.

Standard: No more than 10 percent of respondents to the visitor survey express dissatisfaction at the condition of facilities or exhibits.

Management Action: NPS staff would take the necessary protective measures

to address the maintenance deficiency. Examples could include placing protective covers on original wood floors, repairing worn doors, and encasing an exhibit being affected by physical contact.

The Wright Cycle Company Building. The occupancy limits for this building have not yet been set by the city of Dayton fire marshal. To ensure a quality experience for visitors on guided tours of The Wright Cycle Company building, the carrying capacity would be determined based on the number of people who would comfortably fit into the available space and still be able view the exhibits and hear the interpreter. The optimum number may vary depending on the group type, so carrying capacity would be expressed as a range.

Indicator: The percent of visitors reacting favorably to conditions in the exhibit room. These indicators would be obtained and measured through the onsite interpreters' observations and measurement of visitor perception and reaction to conditions through the use of a visitor survey.

Standard: At least 90 percent of visitors to The Wright Cycle Company building express satisfaction in hearing and seeing the exhibits and/or interpretive talk.

Management Action: NPS staff would employ a system to divide large groups into smaller groups, develop a reservation system, or develop a system that would guarantee entrance at a later time for visitors who were turned away.

To address crowding, and ensure than an entire group can fit into the exhibit area:

Indicator: The maximum waiting time or number of visitors turned away for an interpretive tour.

Standard: No more than 10 percent of visitors to The Wright Cycle Company building are turned away or wait longer than 10 minutes to gain entrance.

Management Action: NPS staff will employ a first-come first-serve (queuing) system, develop a reservation system, or develop a system that would guarantee entrance at a later time for visitors who were turned away.

The National Park Service already conducts an annual visitor use survey that captures some of this information. During 2004, a more extensive survey was conducted that can serve as a baseline for comparing future results.

The monitoring would recognize that stresses on carrying capacity may not be related solely to the presence of park visitors. For example, revitalizing commercial activity along the West Third Street corridor could increase the demand for parking by company employees and patrons and decrease the availability of parking for park visitors.

When the monitoring indicated there might be carrying capacity concerns, the National Park Service would conduct studies to test visitor sensitivities and survey the quality of the experience. When studies determined that conditions were approaching or had exceeded carrying capacities, the National Park Service would develop and implement responses to improve the situation and then monitor their success.

Education and outreach activities in Alternative B would be the same as those described for the alternative to continue current management. This alternative would not result in any changes in staffing levels at The Wright Cycle Company complex or changes in partner participation in park programming.

This alternative recognizes that any boundary expansion would have to be authorized by Congress, which could require several years. Until then, storage and maintenance needs would be met in the same manner as Alternative A.

Huffman Prairie Flying Field, the Wright Memorial, and the Huffman Prairie Flying Field Interpretive Center

Under Alternative B, Huffman Prairie Flying Field, the Wright Memorial, and the Huffman Prairie Flying Field Interpretive Center would be managed as a single unit. This would improve the visitor's sense of park continuity and enhance recognition of the commemorative function of the Wright Memorial.

As described in Alternative A, the boundaries of the prehistoric site at the Wright Memorial were not specified in its listing in the National Register of Historic Places. However, as described in that alternative, the U.S. Air Force manages the entire 27-acre Wright Memorial as a National Register-listed site and intends to amend the National Register of Historic Places nomination to include the entire Wright Memorial. The revised nomination would recognize the area's significance in the commemoration of the Wright brothers, and specifically incorporate the historic landscape designed by the Olmsted brothers firm (Ferguson and Perdue 2003).

As shown on the Alternative B, Wright Memorial and Huffman Prairie Flying Field map (page 63), a key feature of Alternative B would be a two-lane bridge connecting the Huffman Prairie Flying Field Interpretive Center and the flying field. The bridge would be designed to accommodate motorized vehicles, including a rubber-tired shuttle for group transportation. It would have the ability to handle a steel-rail trolley in the future. Because of heightened protection concerns following the terrorist attacks of September 11, 2001, security measures would be incorporated into the bridge design.

The bridge would move visitors from the Huffman Prairie Flying Field Interpretive Center, where most would leave their cars, across the railroad track and Ohio Highway 444 to the Marl Road corridor. Visitors would then follow the Marl Road corridor to the flying field.

This alternative would be most amenable to a transit connection to the National Museum of the U.S. Air Force, with or without the development of a steel-rail trolley. The National Park Service would promote such a connection to encourage visitors at the National Museum of the U.S. Air Force, which is the most popular noncommercial visitor attraction in the state of Ohio, to visit the east unit of Dayton Aviation Heritage National Historical Park.

Preliminary design for the Alternative B bridge was included as Alternative 6 in the multimodal transportation study by Burgess & Niple, Limited (2002). The bridge would reduce the travel distance between the interpretive center parking lot and flying field parking lot (a straight-line distance of just over 1.5 miles) from more than five miles to about two miles.

A National Environmental Policy Act environmental assessment or environmental impact statement would be prepared and National Historic Preservation Act compliance would be completed before the bridge was constructed. However, based on preliminary designs, features of this transit component of Alternative B would include the following:

- A new road with a length of about 0.6 miles would start at the west end of the parking lot at the Wright Memorial. It would run parallel to and south of the existing memorial entry road and

would then turn north to the bridge. The existing security fence would be moved to the south to provide the space needed for the alignment of the new road.

- Approximately 0.4 miles of the steam lines south of the memorial would be buried to prevent conflicts between the new road and this utility corridor and to improve aesthetics. Maintenance is required periodically on all base utilities, so easy access to the steam lines must be maintained.
- The bridge and its embankment on the north side of the highway would be about 0.25 miles long and would have two ten-foot-wide lanes with three-foot-wide shoulders on each side. The bridge clearance would be 17 feet to meet Ohio Department of Transportation requirements. The bridge would reinforce the design of the Wright Memorial, including bridge columns that use the shape of the Wright Memorial monument.
- Approximately 116,000 cubic yards of material would be required for the bridge embankments. Most of the fill would be placed on the north side of the highway in the Mad River floodplain. Embankment borrow areas would be selected in consultation with the Miami Conservancy District and would be designed to meet Miami Conservancy District (2001) requirements that any fill placed within the retarding basin of Huffman Dam below an elevation of 835 feet be compensated by a equal volume of excavation in the basin. Both borrow and fill areas would be subject to regulations in Section 106 of the National Historic Preservation Act that require identification and evaluation of properties within the area of potential effect.
- North of the bridge, the new road would continue generally northward down the bridge embankment until it intersected Marl Road. Visitors would follow the Marl Road alignment northeast to the flying field. As described for Alternative A, plans are underway to upgrade Marl Road and create a boulevard from Hebble Road to the flying field parking lot.

To accommodate longer stays by cars at the interpretive center, parking at the Wright Memorial could be enlarged. The decision to expand parking would be based on carrying capacity considerations described below, and at a maximum would be expanded by 34 spaces to a total of 80 vehicle spaces. This would require the paving of an additional 11,000 square feet (0.25 acres). Candidate sites for additional parking could include the areas east of the interpretive center or south of the existing parking lot. A siting study with appropriate National Environmental Policy Act and National Historic Preservation Act compliance would be prepared before additional parking was installed.

Visitors would first enter the interpretive center where they would receive orientation regarding the entire park and interpretation for Huffman Prairie Flying Field and the Wright Memorial. From there, they would travel to Huffman Prairie Flying Field via the new bridge. The national park signs would be removed from Gate 16A and along the route from the gate to the flying field. This action effectively would make the bridge the only access for the public to the flying field area.

Travel from the interpretive center to Huffman Prairie Flying Field via a multi-passenger shuttle operated by an entity such as the Greater Dayton Regional Transit Authority would be strongly encouraged at all times. During busy periods such as summer weekends, visitors would be required to park their automobiles at the Wright Memorial and take the shuttle to the flying

field. The National Park Service may also allow multi-passenger vehicles such as tour vans or commercial buses to use the bridge to the flying field.

By restricting traffic to large, multi-passenger vehicles, the National Park Service could continue to provide a contemplative experience at the flying field to large numbers of visitors without the commotion and danger associated with automobile traffic. To ensure that the low-intensity experience at the flying field was maintained, this site would not have facilities such as permanent restrooms or other utilities. These features would continue to be available at the Wright Memorial. Portable toilets would be provided at the flying field from April through October and during special events during the winter season.

With group transportation available (and mandatory during busy periods), there would be no need for increased parking at Huffman Prairie Flying Field. Although it would seldom be filled to capacity, the 25-car parking lot north of the flying field would be maintained at its current size. This parking lot is screened from the flying field by vegetation and, even though it would be oversized, it would not intrude on the visual experience at the flying field.

As described for The Wright Cycle Company complex site, the National Park Service would use carrying capacity as a management tool. This would include ongoing monitoring at the flying field, interpretive center, and Wright Memorial. When stresses or resource degradation were indicated, the National Park Service would conduct studies on visitor sensitivities and the quality of the experience, and work with the U.S. Air Force to develop and implement responses and monitor to ensure that the responses were effective. Resource damage would be documented, and measures would be taken by the U.S. Air Force to remedy problems.

The indicators and standards developed to ensure the quality of the visitor experience at Huffman Prairie Flying Field and the Wright Memorial are as follows:

Huffman Prairie Flying Field Interpretive Center. The Huffman Prairie Flying Field Interpretive Center has an occupancy limit of 274 people. The current maximum use of the building is well under the maximum capacity and there is adequate space to accommodate a substantial increase in visitation without adversely impacting the resources.

> *Indicator:* The number of people in the Huffman Prairie Flying Field Interpretive Center.
>
> *Standard:* The total number of visitors and staff does not exceed 90 percent of the facility's maximum capacity (246 people at one time).
>
> *Management Action:* The National Park Service would restrict the number of visitors allowed entrance at one time, and would develop a reservation system or a system that would guarantee entrance at a later time for visitors who were turned away.

The Huffman Prairie Flying Field Interpretive Center can accommodate up to 100 people per tour group. School groups can frequently reach this size. Typically, large groups call ahead to notify the park administration of their group's size and arrival time, but this is not required.

The current use and capacity of the building are such that the exhibits will not be adversely impacted at current or substantially increased visitation levels.

> *Indicator:* The number of people in a tour group at Huffman Prairie Flying Field Interpretive Center.

Standard: A total number of visitors per tour group does not exceed 90.

Management Action: The NPS would take actions to restrict the number of visitors in each group, such as dividing groups and concurrently conducting tours outside and inside the building, and developing a reservation system for large groups.

The Huffman Prairie Flying Field Interpretive Center auditorium has 72 seats. The auditorium currently shows two films, including the park film and an Air Force-produced film, with film selection based on the interests of the visiting group. The auditorium also is used for lectures or presentations, currently at a frequency of once or twice a month. Demand may exceed capacity in the future, based on visitation projections.

Indicator: The number of people in the Huffman Prairie Flying Field Interpretive Center auditorium.

Standard: The total number of people in attendance at the auditorium does not exceed 79 (10 percent over the seating capacity could be accommodated in standing areas).

Management Action: The National Park Service would restrict the number of people allowed into the auditorium for any activity and develop a reservation system or system that would guarantee entrance at a later time for visitors who were turned away.

Wright Memorial Grounds. The current use of the picnic facilities at the Wright Memorial can be sustained, but as visitation grows, grass may become trampled and social trails may develop between the parking areas, picnic areas, and interpretive center.

Indicator: The presence of social trails or bare patches of soil on the grounds at the Wright Memorial.

Standard: The existence of visible paths or other areas that do not regenerate or grow grass.

Management Action: Redirect visitors; establish paved or gravel paths; and install gravel or concrete picnic table pads to prevent erosion.

Parking at the Wright Memorial. Parking currently is adequate, but may not be in the future because of increased visitation.

Indicator: The percentage of visitors who cannot find a parking space near the facilities.

Standard: No more than 10 percent of visitors respond on the visitor survey they were unable to find a parking space.

Management Action: Incrementally expanding the parking lot, by a magnitude consistent with the number of spaces specified in this general management plan amendment, and/or implement a shuttle system to transport visitors from other parking areas to the Wright Memorial.

Huffman Prairie Flying Field. The northeast corner of Huffman Prairie Flying Field is within the Visitor Services/Interpretation zone. This area contains wayside exhibits, a replica catapult-and-rail launch system, and a reconstruction of the 1905 hangar. Many visitors gather in this area. The indicator developed for this management zone takes into account the more interactive, less contemplative nature of this portion of the flying field.

Indicator: The percent of visitors reacting unfavorably to crowded conditions

in the northeast corner of Huffman Prairie Flying Field.

Standard: No more than 10 percent of visitors express in the visitor survey that the other visitors notably detracted from their experience or access to exhibits at the flying field.

Management Action: NPS staff will employ a first-come, first-serve (queuing) system to restrict the number of visitors on the flying field, develop a reservation system, or develop a system that would guarantee entrance at a later time for visitors who were turned away.

Few visitors currently go onto the Flying Field in the Historic Landscape zone, but as visitation grows, the grass may become trampled and social trails may develop. In the Visitor Services/Interpretation zone, which includes the hangar and the catapult, visitors frequently cross the grass to access points of interest. The National Park Service would need to monitor causes of social trails, such as parking access points or short cuts and use this information to refine the indicator and standard for this impact.

Indicator: The presence of social trails on the flying field.

Standard: The existence of any visible path that does not regenerate or grow grass.

Management Action: In the Historic Landscape zone, NPS staff would redirect visitors, or use shuttles to alter the entry points of visitors across the site. In the Visitor Services/Interpretation zone, selected social trails would be graveled or paved to provide direct access to points of interest.

The maximum number of people per day visiting the flying field is an indicator of safety relative to the base hazardous cargo mission. The maximum daily number of visitors is determined by the safety officer at Wright-Patterson Air Force Base.

Indicator: The total number of visitors per day to Huffman Prairie Flying Field.

Standard: Except for special events that are coordinated with the base safety office, daily visitors to the flying field do not exceed 400.

Management Action: Evaluate, with the Air Force safety officer, when and how to close the flying field temporarily or permanently restrict the volume of visitation.

Carrying capacity could indicate the need to expand facilities consistent with this general management plan amendment, such as adding the additional parking spaces near the interpretive center. At the flying field, capacity stresses could be relieved by such actions as having alternate shuttle-loads of visitors disembark at different locations so that visitors would be dispersed throughout the 84-acre site.

Interpretation at Huffman Prairie Flying Field would continue to include the existing replica hangar, trail, wayside exhibits, and occasional ranger-led talks. However, special events and interpretive programs would be offered at a higher frequency than with Alternative A. Particularly during summer weekends, visitors could expect a high level of contact with NPS personnel at this site. Other interpretive enhancements would include the following:

- Huffman Prairie Flying Field and the interpretive center at the Wright Memorial would be about two miles apart by bridge, with no traffic, and the travel time would be about five minutes. As a result, the National Park Service could effectively integrate activities at these two sites.

- Because visitors would have to go to the interpretive center area before traveling to the flying field, they would see these sites in the most appropriate order and would better understand the significance of the flying field.
- NPS staff could provide oral interpretation during the shuttle trip to enhance the continuity between the two sites and help visitors understand the significance of surrounding features.
- The bridge would tie into Marl Road, which parallels the alignment of the Dayton, Springfield, and Urbana Interurban Rail Line that the Wright brothers rode from their home and shop to Huffman Prairie Flying Field. Except for occasional overflights by aircraft using the Wright-Patterson Air Force Base runway, the undeveloped nature of the area would make a shuttle trip similar to the trolley trip experienced by the Wright brothers as they traveled to banker Torrence Huffman's cow pasture. On the shuttle, NPS staff could provide interpretation of the Marl Road corridor, while wayside exhibits at the Wright Memorial and Huffman Prairie Flying Field parking lot could be used to convey this information to visitors traveling by automobile.

To support the improved education and interpretation components of Alternative B, four additional NPS full-time-equivalent staff would be hired.

As described in Alternative A, the U.S. Air Force is intending to remove the former Combat Arms Training and Maintenance facility. This shooting range with support buildings is near Huffman Prairie Flying Field's southwest corner by corner boundary no. 4.

Under Alternative B, a small hangar for the replica Wright B Flyer would be built near the flying field. The former Combat Arms Training and Maintenance facility area is one of several candidate sites that are being investigated by the U.S. Air Force. Appropriate National Environmental Policy Act and National Historic Preservation Act compliance would be completed before the hangar was constructed.

The design and materials used in the new hangar would be compatible with the surrounding cultural landscape. Electricity and water for the fire suppression system would be the only utilities supplied to the new building. Operational benefits of locating the aircraft closer to Huffman Prairie Flying Field, compared to Alternative A, would include the following:

- The operational time required to tow the flyer to the display area near corner boundary no. 1 on Huffman Prairie Flying Field would be reduced from about a half-hour under Alternative A to about 10 to 15 minutes. This would enable the National Park Service and Wright "B" Flyer, Inc. to display the replica Wright B Flyer more frequently. It would also reduce the labor requirements of both organizations for moving the aircraft.
- The travel distance would be reduced from about a mile to several hundred yards, which would reduce the wear and tear on this museum-quality replica.
- Use of the new hangar would eliminate crossing the Wright-Patterson Air Force Base flight line and the need to coordinate with U.S. Air Force operations personnel each time the replica Wright B Flyer was moved to or from Huffman Prairie Flying Field.

As described previously, visitors would access Huffman Prairie Flying Field via the new bridge, and the U.S. Air Force would

remove the signs at Gate 16A and along the route from the gate to the flying field. Even during low-use periods when private automobiles were allowed into the Huffman Prairie Flying Field area via the bridge, visitors would no longer be routed past unauthorized use areas such as the golf course clubhouse and stables. A new gate, chosen for its compatibility with the cultural landscape, would be installed at the south (memorial) end of the bridge to prevent access to the bridge when Huffman Prairie Flying Field was closed.

COSTS

Costs to the National Park Service for implementing Alternative B are shown in Table 3. All life-cycle costs are in FY2004 dollars and were calculated for the next 20 years (through the year 2025).

As shown in the table, the total capital cost of Alternative B would range from $16 million to $17 million.

- The bridge and new or upgraded roads from the interpretive center to the flying field would cost about $14 million and represent 80 to 85 percent of the capital cost for this alternative.
- Improvements at The Wright Cycle Company complex, including the new storage and maintenance facility and rehabilitation of the house at 26 South Williams Street, would represent 10 to 12 percent of the capital costs of Alternative B.
- Additional parking and the hangar for the replica Wright B Flyer would account for the remainder of the capital costs.

Compared to costs incurred by Alternative A, the NPS' operational life-cycle costs for Alternative B would increase by about $400,000 per year. Of the increase in operational costs:

- Approximately two-thirds would result from new staff positions. The enhanced and expanded interpretive program would include two additional park ranger / education specialist (GS-9) and two additional park guide (GS-5) positions.
- About 15 percent would be associated with maintenance of the new bridge and roadway system between the Huffman Prairie Flying Field Interpretive Center and the flying field.
- The remaining 20 percent would provide for maintenance and operation of the building at 26 South Williams Street, the new storage and maintenance facility, the replica Wright B Flyer hangar at Huffman Prairie Flying Field, and expanded parking facilities.

Table 3 shows only the costs that would be incurred by the National Park Service. The other legislated partners, including Wright-Patterson Air Force Base, the Ohio Historical Society, Carillon Historical Park, and Aviation Trail, Inc., also would sustain costs associated with operating their respective park units. However, their costs were not included in this analysis.

ALTERNATIVE C

This section describes Alternative C, including the concept that defines the alternative, its specific features, and costs.

CONCEPT

Alternative C would continue to serve traditional visitors to national parks. However, its primary goal would be to increase regional involvement, particularly in the interpretation, education, and outreach aspects of the park. Visitors would expect an active, participatory experience that would be more broad and expansive than the park's literary and aviation significance.

With a focus at The Wright Cycle Company complex, but inclusive of all park units, Dayton Aviation Heritage National Historical Park would become a vibrant part of the region and community. Many of the activities at this park unit would draw participants from the surrounding communities, neighborhoods, and schools. In addition to using private automobiles and public transit, participants often would arrive on foot, by bicycle, or in school buses, and would consist of individuals or organized groups, as well as families. Area residents, particularly children, would also be inspired to excel in their studies and lives by learning about the literary and engineering achievements of their fellow Dayton residents, Paul Laurence Dunbar and the Wright brothers.

In Alternative C, the National Park Service would actively involve as park partners many community agencies and organizations beyond the legislated partners. An important component of this alternative would be an agreement between the National Park Service and Wright Dunbar, Inc. for NPS use of part or all of the 20,000-square-foot Pekin Theater.

Alternative C would improve activities and coordination at the Huffman Prairie Flying Field Interpretive Center and the flying field. A new at-grade crossing of Ohio Highway 444 at Kauffman Avenue and use of Gate 18C would enhance visitor movement between these two sites.

The features of Alternative C are summarized in Table 2. A more detailed description of the features of this alternative is provided below.

FEATURES

Many of the features of Alternative C would be the same as Alternative A. This would occur because, within the guidance of the current general management plan (NPS 1997c), most aspects of the park are operating well and are effectively fulfilling the mission of Dayton Aviation Heritage National Historical Park. Differences between Alternative C and the alternative to continue current management would include the following:

- The Pekin Theater would be rehabilitated by Wright Dunbar, Inc. The National Park Service would then enter into an agreement with Wright Dunbar, Inc. for the use of all or parts of the facility to support educational and interpretive programs. Wright Dunbar, Inc. and/or other partners might also coordinate use of all or parts of the facility for compatible programming.
- The National Park Service would make its buildings and grounds available to local residents for community activities, increase technical assistance to partners, and enter into cooperative agreements with community partners

for specific projects. Administrative and operations space for park partners could be provided within The Wright Cycle Company complex boundaries or in the adjacent Pekin Theater building.

- The National Park Service would enter into an agreement with a partner organization for use of a maintenance and storage facility to serve park needs. This facility would be outside the park boundary but would be close to The Wright Cycle Company complex.
- As shown in the Alternative C, Wright Memorial and Huffman Prairie Flying Field map (page 77), motorized vehicle access between the Wright Memorial and Huffman Prairie Flying Field would be through Gate 18C via a new, at-grade crossing of Ohio Highway 444 at Kauffman Avenue and a new access road to Marl Road. A rubber-tired trolley operated by a partner (such as the Greater Dayton Regional Transit Authority) to connect the Wright Memorial with Huffman Prairie Flying Field would be feasible, but a steel-rail trolley would not.
- Visitor facilities at Huffman Prairie Flying Field would include increased parking, a kiosk for expanded interpretation and refuge from the elements, and a hangar for the replica Wright B Flyer. Portable toilets would be available at the flying field at all times.
- The National Park Service would increase interpretation outside the existing building at the Wright Memorial. Parking at this site would be expanded to accommodate longer stays by visitors. Visual screening of the steam lines, perhaps with privacy fencing or vegetation, would improve the aesthetics at the Wright Memorial.
- Carrying capacities, with associated indicators and standards, would be used to ensure a consistently high-quality visitor experience. The National Park Service would implement a monitoring plan, including directives for consequent management actions.
- Activities and management of park resources at the Paul Laurence Dunbar State Memorial and John W. Berry, Sr., Wright Brothers Aviation Center at Carillon Historical Park would not change from their current status.

Management Zones

Alternative C would apply both of the management prescriptions described at the beginning of this chapter to park areas to create management zones. The map entitled Alternative C, Wright Memorial and Huffman Prairie Flying Field (Page 77), shows where the management zones would be located in these units. Briefly:

- As with Alternative B, The Wright Cycle Company complex would be entirely within the Visitor Services/ Interpretation zone.
- At Huffman Prairie Flying Field, the Visitor Services/Interpretation zone would be much the same as that described for Alternative B except that:

  The portion of the Marl Road corridor within this zone would extend from Gate 18C to corner marker 6.

  The zone would be expanded to include the areas outside the flying field boundary that were selected by siting studies to support increased parking and the kiosk.
- The remainder of the flying field would be within the Historic Landscape zone.
- At the Wright Memorial, the Visitor Services/Interpretation zone would include the road corridors, parking areas, formal monument, interpretive center

Dayton Aviation Heritage National Historical Park
Alternative C

National Park Service
U.S. Department of the Interior
Ohio
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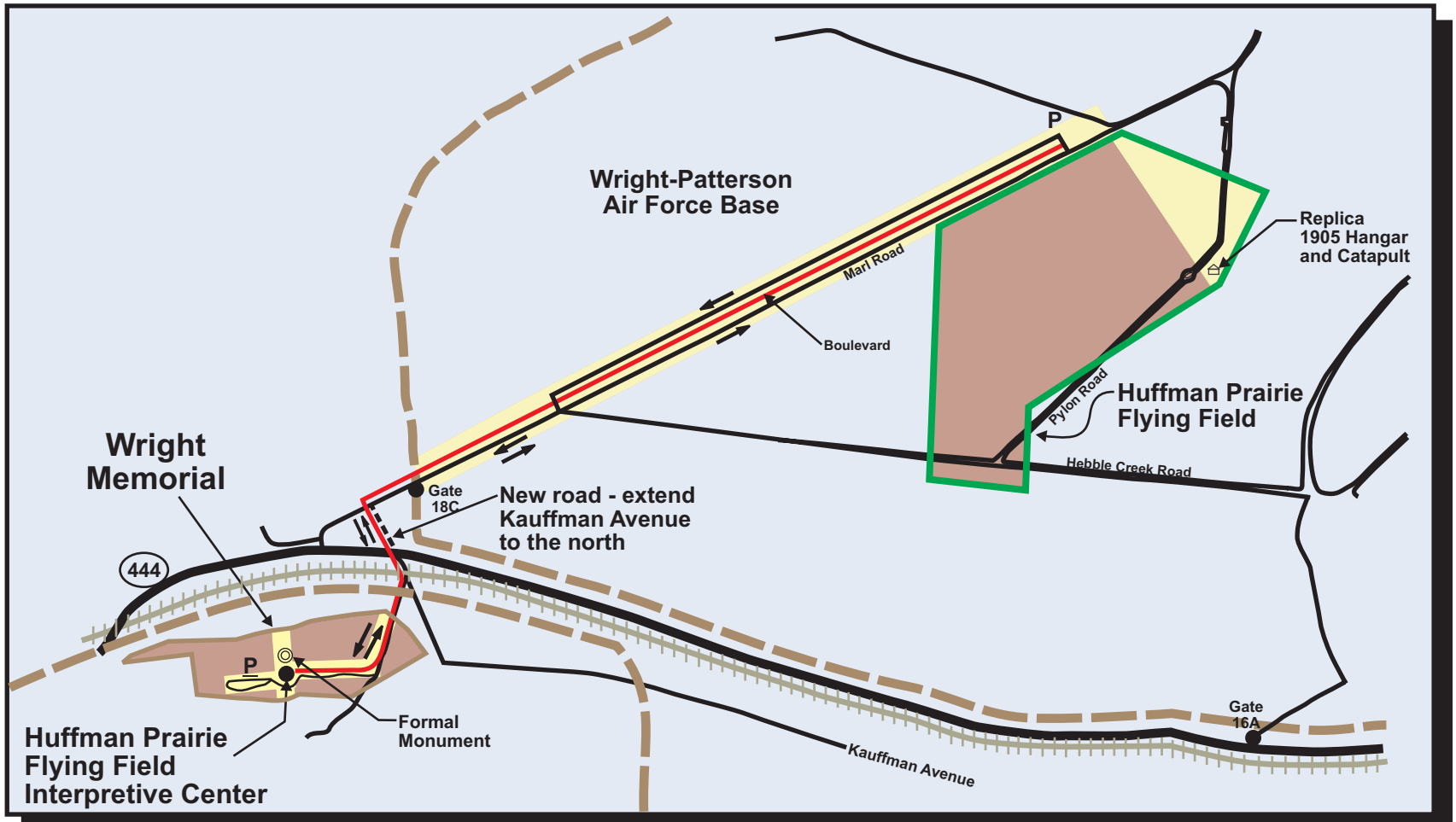

The Wright Cycle
Company Complex

Legend

- Existing Park Boundary
- Railroad
- US Air Force Boundary
- Proposed New Road Alignment
- Visitor Access
- P Parking
- Visitor Services/Interpretation Zone
- Historic Landscape Zone

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area, north overlook, and overlook walkway. However, it would be smaller than the zone in Alternative B because all access would be via the existing road.

- The Historic Landscape zone within the Wright Memorial would include the rolling, lawn-like area on the east side of the memorial grounds and the tree-shaded area on the west side of the grounds that includes the picnic tables and prehistoric burial mounds.

The Kauffman Avenue extension north of Ohio Highway 444 and the upgraded segment of Marl Road west of Gate 18C would not be zoned for management because these areas are not on property owned by the National Park Service or U.S. Air Force.

The Wright Cycle Company Complex

Most facilities at The Wright Cycle Company complex would be managed through the year 2025 in the same manner as Alternative A. Differences are highlighted in Table 2 and described in more detail below.

A key component of Alternative C would be increased partnerships with regional and community organizations, such as Wright Dunbar, Inc. and the Aviation Heritage Foundation, Inc.

- Wright Dunbar, Inc. is affiliated with the national Main Street Program. It promotes the revitalization of the West Third Street corridor and nearby residential neighborhoods. Its mission is to make the West Third Street commercial corridor of the Wright-Dunbar Business Village a visually attractive environment with rehabilitated historic buildings and appropriate and compatible infill construction, with pleasant and inviting streetscapes and a venue for business development that serves the needs of the community, city, and other regional, state, and national markets.
- The Aviation Heritage Foundation, Inc. is the designated management entity for the newly established National Aviation Heritage Area. Its mission is to leverage and enhance the resources and assets of the National Aviation Heritage Area and foster collaboration among its partners to promote aviation heritage tourism and educate and inspire current and future generations.

The Pekin Theater, owned by Wright Dunbar, Inc., is located at 1036-1038 West Third Street, adjacent to the Aviation Trail Visitor Center and Museum. It is a long (130 feet), narrow (45 feet) building with three stories and a basement, totaling about 20,000 square feet. The theater, which was built around 1890, began as a nickelodeon and also presented vaudeville acts. With the decline of the west Dayton community, the theater fell into disrepair, eventually including the collapse of its roof and floors. By 2002, the building consisted only of the front and side walls held up by buttresses.

Wright Dunbar, Inc. recently received a federal grant of $800,000 to begin the rehabilitation of this building. It used the money to stabilize the walls of the Pekin Theater and install a new roof. Because the Pekin Theater is within and contributes to the West Third Street Historic District, which is listed in the National Register of Historic Places, it is being rehabilitated to the Secretary of the Interior's (1995a) standards.

Under Alternative C, Wright Dunbar, Inc. would complete the rehabilitation of this building with a theater located on the second and third floors. The first floor would be designed to incorporate several potential uses, including exhibit galleries, classrooms, meeting rooms, and a small amount of administrative space. Total additional cost of buildout and furnishings would be about $2.2 million. Wright Dunbar, Inc.

would then enter into an agreement with the National Park Service for the use of all or parts of the facility.

Using the Pekin Theater as a base, Alternative C would substantially enhance the NPS' ability to meet the education goals of Dayton Aviation Heritage National Historical Park. These include broadening awareness, understanding, appreciation, and support of historic preservation and the legacy of the Wright brothers and Paul Laurence Dunbar in their community, their work, and their contributions to the world. To support the improved education and outreach components of Alternative C, four additional NPS full-time-equivalent staff would be hired.

Coordination with partners would be expanded to provide a broad educational and outreach constituency. Community partners could include, but would not be limited to, local schools, the Montgomery County Historical Society, the national aviation heritage area, the National Museum of the U.S. Air Force, the Ohio Historical Society's Neil Armstrong Air and Space Museum, Wright State University, and the University of Dayton. The National Park Service could provide training to some of these, benefit directly from the contribution of skills and knowledge by others, and serve as a catalyst in connecting partners with skills and knowledge with those requiring presentations or training.

The school group programs described in Alternative A would continue. However, the National Park Service would be able to work with partners to expand the program to reach more children and teachers and to provide a more diverse curriculum that would address the interests of a wider age range. The educational programs would provide opportunities for:

- Students and teachers to forge intellectual and emotional connections to the park's resources; and
- Partners to develop and deliver service in a thought-provoking and coherent manner.

The outcome would generate a greater understanding and appreciation for educational values among NPS staff, partners, and diverse audiences.

Outreach would be expanded to offer programs to community and social (non-school) tour groups that visit the park. This could include providing training to group leaders, who could then convey information to their members prior to and during their visit. This would provide citizens with a more in-depth experience and could spark interest in getting involved with park partners. Outreach programs also could be offered to local groups not able to travel to the park.

The park would become a "learning center" that would provide the focus for partnering with the local educational community. Results could include standardizing the program and providing training of staff and others to present different aspects of these programs. Moreover, the learning center concept could take advantage of the unique citizen resources available in the Dayton area, such as the large number of retired military personnel.

Orientation in Alternative C would be expanded to include information on additional community partners. The National Park Service would enter into cooperative agreements with community partners for specific projects as well as longer-term arrangements.

The current status and use of the vacant house at 26 South Williams Street were described previously. Under Alternative C, the interior and exterior of this house would

be rehabilitated and adaptively used for NPS and/or partner administrative and other purposes, as described in Alternative B. This alternative also would reconstruct historically compatible outbuildings in the yard behind The Wright Cycle Company building, as described for Alternative B.

Alternative C would include a storage and maintenance facility, similar in size, appearance, and function to that described for Alternative B. However, this facility would be owned by a partner organization, such as Wright Dunbar, Inc., and the National Park Service would enter into an agreement for its use. This facility could be new construction or could be an existing structure. The storage and maintenance facility would be conveniently near The Wright Cycle Company complex but would not be within the park boundary.

As described for Alternative B, the availability of well-designed storage space in the dedicated facility would eliminate the need for storage in the basements of the Wright-Dunbar Interpretive Center and the Aviation Trail Visitor Center and Museum. The National Park Service would probably continue to store bulky or frequently used items in the basements of the historical buildings at 22, 26, and 30 South Williams Street to ensure that park staff would frequently enter the basements of these buildings and that problems would be spotted and repaired promptly.

The goal at The Wright Cycle Company building would be to protect the historical structure and avoid disturbances to visitor experiences. Therefore, Alternative C would manage the second floor of this building in the manner described for Alternative B.

Alternative C would provide both indoor and outdoor experiences at The Wright Cycle Company complex. Community functions could occur indoors in the auditorium of the Wright-Dunbar Interpretive Center and in the theater or meeting rooms of the Pekin Theater. To facilitate community use of the interpretive center, the entryway on West Third Street would provide public access, the same as Alternative A.

To facilitate partnerships, the National Park Service could make administrative and operations space for both legislated and nonlegislated park partners available within The Wright Cycle Company complex. Partner space could be provided in the Pekin Theater, in the rehabilitated house at 26 South Williams Street, and/or in the new storage and maintenance facility.

As described for Alternative B, the National Park Service would use carrying capacity as a management tool for facilities throughout The Wright Cycle Company complex. The indicators and standards used for Alternative C would be the same as those described for The Wright Cycle Company complex for Alternative B.

Use of this tool would be expanded in the future to include the Pekin Theater and carrying capacity standards would be developed based on the use and design of the facility. Responses to carrying capacity concerns often would involve coordinated actions with park partners, such as working with the city of Dayton and Wright Dunbar, Inc. to ensure that adequate parking was available for park visitors and local businesses.

Huffman Prairie Flying Field, the Wright Memorial, and the Huffman Prairie Flying Field Interpretive Center

In Alternative C, Huffman Prairie Flying Field, the Wright Memorial, and the Huffman Prairie Flying Field Interpretive Center would be managed as a single unit. This would improve the visitor’s sense of park continuity and enhance recognition of the

commemorative function of the Wright Memorial.

As with the other alternatives, Alternative C would amend the area's National Register of Historic Places nomination. The revised nomination would define a new boundary to encompass the prehistoric mounds, cultural landscape, and historic memorial. The nomination would define the several periods of significance, recognizing the area's prehistoric significance and its importance in the commemoration of the Wright brothers. It also would incorporate the historic landscape designed by the Olmsted brothers firm, as described in Alternative A.

The regional emphasis of Alternative C would assume that many visitors would be familiar with driving in Dayton. Visitors from the community also would tend to make multiple visits to the flying field and Wright Memorial to participate in events. These visitors would not be challenged by wayfinding between sites and would be less concerned than the traditional park visitor about the continuity of the experience between the memorial and flying field. Therefore, instead of using a bridge, this alternative would provide the following, direct roadway connection between Huffman Prairie Flying Field and the interpretive center:

- Visitors would cross Ohio Highway 444 via an upgraded, at-grade intersection at Kauffman Avenue.
- A new, 500-foot-long road would be built to extend Kauffman Avenue to the north. This would involve committing about 0.6 acre of land to paved surfaces and right-of-way. The road would cross land owned by the Miami Conservancy District and connect with the existing Marl Road corridor.
- Motorists would turn right (northeast) onto Marl Road and enter Wright-Patterson Air Force Base through Gate 18C. The existing gate was designed to accommodate bicycles but has not been opened. Under Alternative C, Gate 18C would be upgraded to a standard vehicular gate. (Gate 16A, which currently provides access to the flying field, may or may not be closed. However, the national park signs would be removed from Gate 16A and along the route from that gate to the flying field. This action effectively would make Gate 18C the only access for the public to the flying field area.)
- From Gate 18C, visitors would travel about 1.3 miles on Marl Road to the parking lot. As described for Alternative A, plans are underway to upgrade Marl Road and create a boulevard from Hebble Road to the flying field parking lot.

Appropriate National Environmental Policy Act and National Historic Preservation Act compliance would be completed before these transportation system features were constructed.

Alternative C could accommodate a rubber-tired shuttle for group transportation between the memorial and flying field. A rubber-tired shuttle also could connect these two sites with other Dayton features, such as the National Museum of the U.S. Air Force and the west units of the national park. However, the alternative would not include future use of a steel-rail trolley.

The average visit under Alternative C would be longer than would occur with Alternative A. Many of the visitors from the community would expect a several-hour or full-day experience at the memorial or flying field as they participated in family picnics or special events such as kite-flying day. This would contrast with traditional park visitors, who typically would spend only an hour or two at the interpretive center or walking among the wayside exhibits

at the flying field. To accommodate longer stays, Alternative C would include the following expanded parking, which would be installed only when need was demonstrated by carrying capacity evaluations:

- At Huffman Prairie Flying Field, parking could be increased by as many as 35 spaces to accommodate a maximum of 60 vehicles. This would require the paving of an additional 11,400 square feet (0.25 acres).
- At the Wright Memorial, parking could be expanded from the current 46 spaces to a total of 100 spaces. The additional spaces could be installed on a phased basis to accommodate growth based on a clear determination of need. The maximum buildout of parking would require the paving of an additional 17,500 square feet (0.4 acres).

Both sites have constraints that would limit areas available for parking. For example, at the Wright Memorial, the parking area would need to avoid slopes or the landscape designed by the Olmsted brothers firm. Sites to be avoided at Huffman Prairie Flying Field include the safety zones associated with the hazardous cargo pads near the runway that are used for loading munitions onto aircraft, the remnant prairie, and the remaining roadbed of the Dayton, Springfield, and Urbana Interurban Rail Line. Therefore, siting studies with appropriate National Environmental Policy Act and National Historic Preservation Act compliance would be prepared before additional parking was installed.

Alternative C would not include moving the fence behind the Huffman Prairie Flying Field Interpretive Center or burying the steam lines. It would include planting and maintaining vegetation to provide visual screening between the Wright Memorial and the utility area to the south. Such vegetative screening was included in the original design by the Olmsted brothers firm, but the pines have overgrown this function and the smaller vegetation has died out. Replanting would help restore the original design and is consistent with the recommendations in the cultural landscape report that was prepared for this area (NPS 1997a). All actions would be planned and implemented with the recognition that they would have the potential to disturb archeological resources.

On busy weekends, visitors would be encouraged to leave their private automobiles in the parking lots at the Wright Memorial or Huffman Prairie Flying Field and take a shuttle between the two sites. However, there would not be any limitations on travel by car to either site.

Visitors could travel to the interpretive center and flying field in whatever sequence they preferred. Often, repeat visitors from the community would go to only one of the sites to participate in a particular event. As in Alternative A, traditional park visitors would be encouraged to visit the interpretive center at the Wright Memorial first and then travel to Huffman Prairie Flying Field, but there would be little effort to integrate activities at the two sites.

The longer visits to the flying field area that would occur with Alternative C would indicate a need for sanitation facilities. Therefore, this alternative would include portable restrooms in the flying field area at all times. No other utilities would be provided at the flying field.

Alternative C would include a kiosk at Huffman Prairie Flying Field. The kiosk could be sited at a parking area or near the replica of the Simms Station platform. The kiosk's design would accommodate its presence in the Huffman Dam retarding basin and would consist of a foundation, vertical supports, a roof, and interpretive panels that would not reduce flood storage capacity or impede flood flows.

The design, materials, landscaping, and location of the kiosk would help ensure its compatibility with the Huffman Prairie Flying Field historic scene. National Environmental Policy Act compliance would be prepared and, if necessary, archeological investigations would be conducted prior to construction to help locate the kiosk site in a non-sensitive area. Interpretive media in the kiosk would be targeted toward visitors who had not been to the interpretive center.

Entry into the Huffman Prairie Flying Field area via Marl Road would follow the route taken by the Wright brothers as they entered the area on the Dayton, Springfield, and Urbana Interurban Rail Line. Alternative C could include the installation of turnouts with wayside exhibits to interpret this corridor.

Interpretation at Huffman Prairie Flying Field would continue to include the existing replica hangar, trail, and wayside exhibits. However, special events and interpretive programs would be offered at a higher frequency than with Alternative A. Particularly during summer weekends, visitors could expect a high level of contact with NPS personnel at this site.

Alternative C would include construction of a new hangar for the replica Wright B Flyer, possibly at the former site of the Combat Arms Training and Maintenance facility, as described for Alternative B. This action would include the features described in Alternative B.

As described for Alternative B, the National Park Service would use carrying capacity as a management tool for facilities at the flying field, interpretive center, and Wright Memorial. The indicators and standards used for Alternative C would be the same as those described for Alternative B.

COSTS

Costs to the National Park Service for implementing Alternative C are shown in Table 3. All life-cycle costs are in FY2004 dollars and were calculated for the next 20 years (through the year 2025).

As shown in the table, the total capital cost of Alternative C would range from $3 million to $4 million.

- Approximately 60 percent of this cost would be required to construct the new access road from Kauffman Avenue to Marl Road and to upgrade the existing Marl Road corridor.
- Rehabilitation of the house at 26 South Williams Street and construction of a hangar for the replica Wright B Flyer would each require about 15 percent of the additional capital cost associated with this alternative.
- Most of the remainder would be used to provide Additional parking at the Wright Memorial and Huffman Prairie Flying Field. About 1 percent of the capital cost would be used to construct the new interpretive kiosk at the flying field.

Compared to costs incurred by Alternative A, the NPS' operational costs for Alternative C would increase by $300,000 to $600,000 per year. Of the increase in operational costs:

- The greatest variation would be associated with the use of the Pekin Theater, because the National Park Service may not use the entire structure and the terms and nature of a possible use agreement are not known. Yearly costs for this facility could range from $50,000 to $250,000 and would represent 15 percent to 40 percent of the operating costs increase compared to Alternative A.

- The enhanced and expanded interpretive and community participation program would include two additional park ranger / education specialist (GS-9) and two additional park guide (GS-5) positions. Their earnings would account for 40 to 60 percent of the change in operational costs.
- The remaining 20 to 25 percent would provide for use of the new storage and maintenance facility and for maintenance and operation of the building at 26 South Williams Street, the replica Wright B Flyer hangar and kiosk at Huffman Prairie Flying Field, and expanded parking at the flying field and Wright Memorial.

Table 3 only shows the costs that would be incurred by the National Park Service. The other legislated partners, including Wright-Patterson Air Force Base, the Ohio Historical Society, Carillon Historical Park, and Aviation Trail, Inc., also would sustain costs associated with operating their respective park units. However, their costs were not included in this analysis.

THE ENVIRONMENTALLY PREFERRED ALTERNATIVE

This section identifies the alternative that will best promote the national environmental policy expressed in the National Environmental Policy Act.

The environmentally preferred alternative is defined as "the alternative that will best promote the national environmental policy expressed in the National Environmental Policy Act's Section 101." Ordinarily, this means the alternative that causes the least damage to the biological and physical environment. It also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.

Section 101(b) of the National Environmental Policy Act identifies six criteria to help determine the environmentally preferred alternative. The act directs that federal plans should:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.
- Preserve important historical, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice.
- Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Compared to the alternative to continue current management, both action alternatives would improve the ability of the National Park Service and its partners to preserve important historical, cultural, and natural aspects of our national heritage. Alternative C is environmentally preferable to the other alternatives for the following reasons:

- The improved interpretive capabilities of this alternative would expand the NPS' ability to convey to area children and others how they are enriched personally and as a culture by the actions of preceding generations and that they will, in turn, have the opportunity to carry on the trust. While this message would include the accomplishments of international renown of Paul Laurence Dunbar and the Wright brothers, it also will make them aware of the ability of local citizens, such as Aviation Trail, Inc. and Carillon Historical Park, to work together and achieve successes as trustees of our cultural and natural resources.
- Its enhanced visitor programming and community outreach elements would improve the opportunities for Dayton residents, particularly those in the neighborhoods around the park, to receive experiences that will help them become more productive citizens in safe, healthful, and aesthetically and culturally pleasing surroundings.
- A wider range of beneficial uses of the cultural environment would be provided by this alternative without the degradation and unintended conse-

quences on natural resources that would result from Alternative B's bridge embankment and new road north of Ohio Highway 444.

- Enhanced visitor programming and community outreach would support diversity and variety of individual choice, particularly in the low-income populations around the park where children and youths may not be aware of the wide range of choices that are available to them and how to exercise that choice.
- The same components of this alternative would contribute more to enhancements in the standard of living and a wide sharing of life's amenities without producing serious adverse effects on natural and cultural resources.

SUMMARIES

NPS guidance in *Director's Order #12 and Handbook: Conservation Planning, Environmental Impact Analysis, and Decision Making* (NPS 2001) requires that environmental impact statements include several summaries that will facilitate reader understanding. The important features of each alternative were summarized previously in Table 2. The relative costs for the features associated with each alternative are included at the ends of the alternatives descriptions. Detailed descriptions of the features of each alternative were provided earlier in this section.

Under the heading "Purpose of the General Management Plan Amendment," seven objectives were presented that would need to be addressed for the amendment to be considered successful. Those objectives are included in Table 4, with a brief summary of how each alternative would meet each objective. In several cases, an action alternative would use the same approach as the alternative to continue current management to address an objective. This does not indicate that the action alternative would not be successful. Instead, after careful consideration, it was determined that continuing the current management approach would be the most appropriate method of meeting that objective within the context of that alternative.

The NPS guidance in Director's Order #12 states that another summary should present "the impacts of each alternative, including a determination of potential improvement to park resources." Table 5 provides a brief summary of the effects of each of the alternatives on the impact topics retained for analysis (see Table 1).

- The table includes both adverse and beneficial effects of the alternatives and identifies their intensity (negligible, minor, moderate, or major), duration (short-term or long-term), geographic area of effect, and whether they would be direct or indirect.
- The table also includes a summary of whether impairment would occur to the park's scenery, natural and historic objects, or wildlife such that they could not be enjoyed by future generations.

More detailed information supporting Table 5 on the effects of the alternatives is provided in the "Environmental Consequences" section

A summary of how each alternative would achieve the requirements of Sections 101 and 102(1) of the National Environmental Policy Act was included under the heading "The Environmentally Preferred Alternative."

TABLE 4: OBJECTIVES, AND HOW THE ALTERNATIVES WOULD MEET THEM

General Management Plan Amendment Objective	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Address current opportunities for community partnerships and consider possibilities for future partnering.	No change would occur from current conditions.	Same as Alternative A.	Wright Dunbar, Inc., would rehabilitate the Pekin Theater, and the National Park Service would enter into an agreement with Wright Dunbar, Inc. to utilize all or parts of the facility. Strong emphasis would be placed on additional partnering.
Address the need for a maintenance and storage facility at or near The Wright Cycle Company complex.	No facility would be provided.	NPS-owned facility would be constructed within the park boundary.	National Park Service would lease an appropriate facility outside the park.
Consider the need for boundary expansion at The Wright Cycle Company complex.	No change would occur from current conditions.	Park boundary would be expanded to include the maintenance and storage facility.	Same as Alternative A.
Provide a management strategy for unused or underutilized areas at The Wright Cycle Company complex, including the backyards, vacant house at 26 South Williams Street, and second floor of the bicycle shop.	No management strategy would be provided.	Areas would be developed primarily to enhance NPS and partner operations.	Areas would be developed to enhance NPS and partner operations and to support community activities.
Address travel and the integration of interpretation and activities between Huffman Prairie Flying Field and its interpretive center at the Wright Memorial.	No change would occur from current conditions.	The new bridge would reduce travel times by almost 70 percent and facilitate coordination of interpretation and activities at the two sites.	Use of Gate 18C would reduce travel times by about half and would have a positive effect on the ability to coordinate interpretation and activities at the two sites.
Consider the most appropriate level of visitor facilities and visitor services at Huffman Prairie Flying Field.	No change would occur from current conditions.	The bridge would make visitor facilities and services at the interpretive center readily available to flying field visitors.	A small kiosk, year-round toilets, and additional parking would be provided at the flying field.
Acknowledge the increased security needs of the U.S. Air Force and provide an approach to accommodating park visitors within security constraints.	No change would occur from current conditions.	Access via the bridge would eliminate the routing of park visitors past unauthorized use areas.	Access via Gate 18C would eliminate the routing of park visitors past unauthorized use areas and would decrease the impact of park visitors on Air Force base operations.

TABLE 5: IMPACTS OF THE ALTERNATIVES

Impact Topic	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Endangered, threatened, and other special status species and their habitats	Negligible effects on special concern species and their habitats. No impairment of special status species or their habitats.	Negligible effects at The Wright Cycle Company complex. Impacts at the Wright-Patterson Air Force Base sites would include the following: Indiana bat: Long-term, adverse, indirect effect of minor intensity would result from the removal of some potential roost and maternity trees. Eastern massasauga rattlesnake: short- and long-term, adverse, direct and indirect effects of moderate to major intensity. Alternative B would be likely to adversely affect the species and adversely modify its habitat. Blazing star stem borer: short- and long-term, direct and indirect, adverse effects of minor intensity. Negligible impact on other species. No impairment of special status species or their habitats.	Negligible effects at The Wright Cycle Company complex and Wright-Patterson Air Force Base sites. No impairment of special status species or their habitats.
Vegetation, including ecologically critical areas or unique natural resources	Negligible effects on native vegetation, including ecologically critical areas or unique natural resources. No impairment of vegetation resources.	Adverse, direct, short- and long-term effects of minor intensity on small area of second-growth native hard-wood forests. Other effects would be negligible. No impairment of vegetation resources.	Negligible effects on native vegetation, including ecologically critical areas or unique natural resources. No impairment of vegetation resources.
Soils	Negligible impacts on soils. No impairment of soil resources.	Minor to moderate, direct, adverse, short-term impacts on soils related to new construction. Long-term impacts would be negligible. No impairment of soil resources.	Direct, adverse, short-term impacts of minor intensity related to new construction associated with Alternative C. Long-term impacts would be negligible. No impairment of soil resources.

TABLE 5: IMPACTS OF THE ALTERNATIVES (CONTINUED)

Impact Topic	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Water quality and hydrology	Negligible impacts on water quality and hydrology within or near the park. No impairment of water quality or hydrology resources.	Minor, indirect, adverse, short-term impacts on surface water quality related to new construction. Negligible long-term water quality impacts. Negligible effects on the Huffman Dam retarding basin storage capacity and the water quality of the Mad River Buried Valley Aquifer. No impairment of water quality or hydrology resources.	Negligible impacts on water quality and hydrology within or near the park. No impairment of water quality or hydrology resources.
Wetlands and floodplains	Negligible effects on wetlands and floodplains. No impairment of wetland or floodplain resources.	Negligible effects on wetlands and floodplains near The Wright Cycle Company complex and the Wright Memorial and on floodplain capacity of the Huffman Dam retarding basin. The new road north from the bridge embankment would have short- and long-term, direct, adverse effects of major intensity on wetlands. No impairment of wetland or floodplain resources.	Negligible effects on wetlands and floodplains. No impairment of wetland or floodplain resources.
Wildlife and wildlife habitats, including aquatic life	Negligible impacts on wildlife and wildlife habitats. No impairment of wildlife or their habitats.	Short- and long-term, adverse, primarily indirect effects of minor intensity to terrestrial wildlife in the vicinity of Huffman Prairie Flying Field. Other effects would be negligible. No impairment of wildlife or their habitats.	Negligible impacts on wildlife and wildlife habitats. No impairment of wildlife or their habitats.
Archeological resources	Negligible impact on prehistoric and historic archeological resources. No impairment of archeological resources.	Negligible to minor, adverse, long-term impacts on prehistoric and historic archeological resources in the vicinity of The Wright Cycle Company complex, the Wright Memorial, and Huffman Prairie Flying Field. No impairment of archeological resources.	Negligible to minor adverse, long-term impacts on prehistoric and historic archeological resources in the vicinity of The Wright Cycle Company complex, the Wright Memorial, and Huffman Prairie Flying Field. No impairment of archeological resources.

TABLE 5: IMPACTS OF THE ALTERNATIVES (CONTINUED)

Impact Topic	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Historic structures and buildings	Negligible impact on historic structures and buildings. No impairment of historic structures or buildings.	Negligible to minor, beneficial impact in the vicinity of The Wright Cycle Company complex. Impacts at the Wright Memorial and Huffman Prairie Flying Field would be negligible. No impairment of historic structures or buildings.	Negligible to minor, beneficial impact in the vicinity of The Wright Cycle Company complex. Impacts at the Wright Memorial and Huffman Prairie Flying Field would be negligible. No impairment of historic structures or buildings.
Cultural landscapes, including urban quality and design of the built environment	Negligible direct impacts on the cultural landscapes or historic scenes. Indirectly, this alternative would continue to contribute to the minor or moderate beneficial impacts on cultural landscapes that are occurring at all three sites. No impairment of cultural landscapes.	Direct, minor, beneficial and adverse impacts at The Wright Cycle Company complex. Direct, beneficial, minor impact at Huffman Prairie Flying Field. Indirect minor or moderate beneficial impacts on cultural landscapes at both sites. Direct, adverse effect under Section 106 from the new road and expanded parking at the Wright Memorial. Other project features at and near this site would have a minor, adverse impact. Cumulatively, Alternative B would detract from other cultural landscape rehabilitation efforts in this area. No impairment of cultural landscapes.	Negligible to minor beneficial impacts at The Wright Cycle Company complex. Minor beneficial and negligible adverse impacts on the cultural landscape would occur at Huffman Prairie Flying Field. At the Wright Memorial, there would be a negligible, adverse impact from the expanded parking. No impairment of cultural landscapes.

TABLE 5: IMPACTS OF THE ALTERNATIVES (CONTINUED)

Impact Topic	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Economics and socioeconomics, including socially or economically disadvantaged populations	Negligible short-term, construction-related impacts. Long-term, beneficial, primarily indirect effects of negligible or minor intensity would occur in sales and income, tax revenues, and crime at the county level. Long-term, beneficial, primarily indirect effects of major intensity that would involve reduced crime and unemployment and increased housing availability, median income, percent of citizens in the labor force, and levels of educational attainment at the neighborhood level. Long-term, adverse, primarily indirect effects of minor intensity because of increased demands for services and reduced privacy. Alternative A would not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.	Short-term, beneficial, direct and indirect effects of minor intensity related to the construction or rehabilitation of park facilities. Negligible, long-term social and economic effects compared to Alternative A, but this alternative would have the same major improvements to the neighborhood compared to current conditions that would occur with Alternative A. There would not be disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.	Short-term, beneficial, direct and indirect effects of minor intensity related to the construction or rehabilitation of park facilities. Long-term, beneficial social and economic effects of minor or moderate intensity in the areas of education improvements and crime reductions. This alternative would have the same major improvements to the neighborhood compared to current conditions that would occur with Alternative A. There would not be disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

TABLE 5: IMPACTS OF THE ALTERNATIVES (CONTINUED)

Impact Topic	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Land use plans, policies, or controls	Negligible effect on the implementation of land use plans, policies, and controls in the area.	Negligible effects on land use plans, policies, or controls in the vicinity of The Wright Cycle Company complex. Impacts relative to the Wright-Patterson Air Force Base's endangered species management plan would include the following: Short-term impacts of moderate intensity with provisions protecting the Indiana bat and minor intensity with provisions protecting the blazing star stem borer. Long-term impact of major intensity with provisions protecting the eastern massasauga rattlesnake. Conflicts with the base's Integrated Natural Resources Management Plan's wetland management strategies would result in a long-term, adverse, direct impact of moderate intensity.	Negligible effects on land use plans, policies, or controls in the vicinity of The Wright Cycle Company complex. Short-term impacts of minor intensity with provisions of the Wright-Patterson Air Force Base endangered species management plan protecting the Indiana bat and blazing star stem borer.
Park and partner operations	Effects at The Wright Cycle Company complex and the Wright Memorial would be negligible. At Huffman Prairie Flying Field, transporting the replica Wright B Flyer to and from its display site would continue to have a long-term, direct, adverse effect of moderate intensity on NPS and U.S. Air Force operations.	Long-term, direct or indirect, beneficial effects of minor or moderate intensity would result from the use of the dedicated storage and maintenance facility, locating the hangar for the replica Wright B Flyer close to Huffman Prairie Flying Field, providing space for partners at The Wright Cycle Company complex, NPS staff increases; and quicker staff transit between the flying field and interpretive center. Long-term, indirect, adverse effects of minor or moderate intensity would be associated with runway security and having to provide maintenance for the new bridge and two new buildings. Short-term, adverse, moderate effects would result from the need for additional security during bridge construction.	Long-term, direct or indirect, beneficial effects of minor or moderate intensity would result from the use of the dedicated storage and maintenance facility, locating the hangar for the replica Wright B Flyer close to Huffman Prairie Flying Field, providing space for partners at The Wright Cycle Company complex, NPS staff increases, and quicker staff transit between the flying field and interpretive center.

TABLE 5: IMPACTS OF THE ALTERNATIVES (CONTINUED)

Impact Topic	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Public health and safety	Additional traffic from park visitors on South Williams Street and other neighborhood streets would represent a long-term, indirect, adverse impact of minor intensity on public health and safety. All other effects of Alternative A on public health and safety would be negligible.	Long-term, indirect, beneficial effect of minor intensity would result from dispersing traffic away from areas of heavy pedestrian use at The Wright Cycle Company complex. Long-term, indirect, adverse, minor effect associated with longer response time for emergencies at Huffman Prairie Flying Field. Long-term, indirect, beneficial, minor effect because additional parking at the Wright Memorial would improve emergency access during busy days.	Long-term, indirect, beneficial effects of minor intensity would result from dispersing traffic away from areas of heavy pedestrian use at The Wright Cycle Company complex and from improved emergency access at the Wright Memorial on busy days.
Transportation	Long-term, indirect, adverse effect of minor to moderate intensity on traffic on South Williams Street. Negligible to minor effects on traffic on West Third Street and negligible effects on traffic on Ohio Highway 444. Levels of service at the intersections in both areas would experience negligible effects.	Long-term, beneficial, indirect effects of moderate intensity on South Williams Street and long-term, adverse, indirect effects of minor intensity on the other secondary streets in the area. Long-term, adverse, indirect, minor effect on level of service would occur for traffic turning left from Kauffman Avenue onto Ohio Highway 444.	Long-term, beneficial, indirect effects of moderate intensity on South Williams Street and long-term, adverse, indirect effects of minor intensity on the other secondary streets in the area. A direct, adverse impact of major intensity would occur in several lanes in the intersection of Ohio Highway 444 and Kauffman Avenue. With mitigation by the Ohio Department of Transportation, the long-term intensity of this adverse impact would be moderate.

TABLE 5: IMPACTS OF THE ALTERNATIVES (CONTINUED)

Impact Topic	Alternative A – No Action / Continue Current Management	Alternative B	Alternative C
Visitor use and experience	Long-term, adverse, direct effect from insufficient parking at the Wright Memorial and Huffman Prairie Flying Field during summer weekends by 2025. At other times, effects of parking on visitor use and experience would be negligible. Minor adverse effects during winter months from the absence of toilets at Huffman Prairie Flying Field. The circuitous drive between the flying field and interpretive center and the low level of continuity between the two sites would have direct and indirect, long-term, adverse effects of moderate intensity on visitor use and experience. During summer weekends by 2025, the quality of the experience could decrease because of crowding, the inability to see and hear, and changes in the landscape character in the Historic Landscape zones at the flying field and Wright Memorial. The intensity of the long-term, adverse effect would be minor to moderate.	Long-term, direct and indirect, beneficial effects of moderate intensity from improved continuity of the visitor experience between the Wright Memorial and Huffman Prairie Flying Field. Long-term, direct and indirect, beneficial effects of minor or moderate intensity would be associated with increased parking availability at the Wright Memorial and reduced need for parking at Huffman Prairie Flying Field because of the use of shuttles; improved access to toilets from Huffman Prairie Flying Field; additional visitor programming at the Wright Memorial, Huffman Prairie Flying Field, and the trip between; easier visitor access between these sites; the use of carrying capacities to ensure the quality of visitor experiences, and reduced distraction associated with changes in NPS use of The Wright Cycle Company building. Long-term, direct and indirect, adverse effects of minor intensity would occur on community outreach at The Wright Cycle Company complex, and from the intrusion of new facilities, including the bridge, on the park character.	Long-term, direct and indirect, major beneficial effects on visitor programming and community outreach. Long-term, beneficial, direct and indirect effects of moderate intensity from the availability of additional parking at the Wright Memorial. Long-term, beneficial, direct effects of minor to moderate intensity would result from the use of carrying capacities to ensure the quality of visitor experiences. Minor or moderate, long-term, beneficial, direct and indirect effects would result from the availability of additional parking, toilets, and a kiosk at Huffman Prairie Flying Field, the improved continuity of the experience between the Wright Memorial and Huffman Prairie Flying Field, improved visitor access between these sites, and reduced distraction associated with changes in NPS use of The Wright Cycle Company building.

CHAPTER 3: AFFECTED ENVIRONMENT

ENDANGERED, THREATENED, AND OTHER SPECIAL STATUS SPECIES AND THEIR HABITATS

There are no endangered, threatened, and other special status species or habitats for these species in the vicinity of The Wright Cycle Company complex. This area is heavily urbanized and all such species would have been removed when the area was developed more than 130 years ago.

Information in this section for Wright-Patterson Air Force Base is from the U.S. Air Force's endangered species management plan. This plan represents Chapter 6 of the base's Integrated Natural Resources Management Plan (Wright-Patterson Air Force Base 2001c).[3.] The plan includes information from eight surveys for rare species conducted on the base by six companies or organizations; they were published between 1992 and 2001.

To comply with Air Force guidance, the endangered species management plan must address all federally listed species, plus state-listed species having a Global Heritage Status ranking of G3 (vulnerable globally) to G1 (critically imperiled globally) that have been found on a base. At Wright-Patterson Air Force Base, five species meet these criteria. They include the:

- Indiana bat (*Myotis sodalis*), which is listed as federally and state of Ohio endangered and has a Global Heritage Status ranking of G2 (imperiled globally);
- Bald eagle (*Haliaeetus leucocephalus*), which is listed as a federally threatened and state endangered species;
- Eastern massasauga rattlesnake (*Sistrurus catenatus catenatus*), a candidate species for federal listing that has a G3G4 Global Heritage Status ranking (rounded global ranking of G3) and is classified as an endangered species by the state of Ohio;
- Clubshell (*Pleurobema clava*), a mussel listed as federally and state of Ohio endangered and has a global ranking of G2; and
- Blazing star stem borer (*Papaipema beeriana*), a moth that has a G3 Global Heritage Status ranking and is classified as an endangered species by the state of Ohio.

In addition, the endangered species management plan identifies eight species of birds, one species of reptile, one species of arthropod, and 12 species of plants that have been designated with lower levels of concern that occur on Wright-Patterson Air Force Base.

Detailed information on the preceding five species is included in the Wright-Patterson Air Force Base (2001c) endangered species management plan. This includes species status; a description of the species; distribu-

3. The Sikes Act (16 United States Code 670a-670o, 74 stat. 1052), as amended, provides for cooperation by the Departments of the Interior and Defense with state agencies in the planning, development, and maintenance of fish and wildlife resources on military reservations throughout the United States. Public Law 105-85 requires that Integrated Natural Resources Management Plans be prepared for each military installation with significant natural resources and that these plans be updated every five years. The provisions contained in an approved Integrated Natural Resources Management Plan must be followed, and any deviation is a violation of the Sikes Act

tion and range; life history and ecology; conservation measures and management guidelines, including range-wide measures and specific actions at the base; and conservation goals at the base. A brief summary of the information in the endangered species management plan as it relates to Dayton Aviation Heritage National Historical Park and alternatives for its management is presented below.

INDIANA BAT

The Indiana bat was listed as endangered on March 11, 1967 by the U.S. Fish and Wildlife Service (32 Code of Federal Regulations, Part 48). A recovery plan for the Indiana bat was published in 1983. A revision of this plan was prepared in 1999 but has not been finalized (U.S. Fish and Wildlife Service 1999). A principal cause of the species' decline is thought to be destruction and modification of hibernacula (winter hibernation areas) from collapse, flooding, vandalism, and commercialization of caves. Other factors contributing to the decline of Indiana bat populations include summer habitat loss and pesticide poisoning.

The Indiana bat is migratory. It is known to hibernate over the winter in caves and mines in 25 states, including Ohio. However, approximately 85 percent of the population hibernates in nine caves or mines in Indiana, Kentucky, and Missouri that are designated Priority One hibernacula. There are no records of hibernating Indiana bats in the counties that include Dayton Aviation Heritage National Historical Park.

The summer range includes 17 states, including Ohio. Indiana bats are known to occur on Wright-Patterson Air Force Base during the summer. An Indiana bat was first captured at a mist net site near Trout Creek in Area C (just west of Huffman Prairie Flying Field) in July 1993. In July 2000, two Indiana bats were captured at mist net sites along Trout Creek in Area C during a base-wide mist net survey. The bats were fitted with radio transmitters, and tracking led to the discovery of a maternity colony in a dead tree within a woodlot on the campus of Wright State University.

Data from the radio telemetry study also were used to delineate areas of the base being used by these two Indiana bats. No use was documented within Huffman Prairie Flying Field, but numerous telemetry fixes of both animals were collected in the area west and south of the flying field, including the Wright Memorial area.

Based on the extensive investigations conducted in 2000, all forested areas and woodlots on the base and nearby lands were determined to be potentially suitable roosting habitat for Indiana bats. Forested areas and early successional or old fields in the vicinity provide foraging habitat. Areas mapped as primary habitat for the Indiana bat in the base's endangered species management plan include Huffman Prairie Flying Field, the Wright Memorial, and the lands between, including the Marl Road corridor. The Mad River riparian corridor also is within the primary habitat on the base for this species.

Range-wide conservation measures for the Indiana bat being implemented on federal lands include protecting streamside forests and providing trees of the correct species and size for maternity colonies and roosting. Special attention is given to large-diameter dead trees (greater than 20 inches diameter at breast height) at forest edges or in forest openings.

The Wright-Patterson Air Force Base endangered species management plan lists nine recommendations from the Missouri Department of Conservation for the management of forests to encourage development and protection of Indiana bat habitat. These measures were included in the U.S.

Air Force's preparation of base-specific conservation measures. Summer habitat management practices for the base were designed in coordination with the Ohio Department of Natural Resources and U.S. Fish and Wildlife Service.

Even before discovery of the Indiana bat on the base, the installation's riparian corridor management practices restricted ground-disturbing activities and allowed natural forest regeneration to occur in a zone at least 165 feet (50 meters) wide on each side of the Mad River. The restored riparian areas probably were important in providing the flight corridors, roosts, and foraging areas that led Indiana bats to use the area. These management practices will continue. Additional practices designed specifically for Indiana bat management state that the base will:

- Prohibit timber harvest and maintain all snags and cavity trees unless they pose a safety hazard or compromise the military mission.
- Coordinate with the base's natural resources manager for activities or projects that require tree removal in forested areas or small woodlots.
- Prohibit in-stream gravel operations in the Mad River.
- Conduct periodic restoration projects along riparian corridors and tree-lined roadways that may serve as flight corridors for Indiana bats. These could include applying herbicide to kill bush honeysuckles, which can suppress forest regeneration.
- Allow the removal of suitable Indiana bat roost trees (that is, trees with exfoliating bark) only when necessary for a project. Cutting of such trees is prohibited between mid-April and mid-September to avoid incidental take of roosting bats. If construction schedules conflict with this tree-removal window, tree removal during this period can only be conducted after the area needing to be cleared of trees has been surveyed by qualified wildlife biologists with mist nets, and it is established that bats are not present.
- Restrict the use of aerial application or fogging with pesticides. Currently, such activities are not conducted on base property. However, if the need arises because of an insect-transmitted disease outbreak, aerial spraying and/or fogging would be conducted primarily in populated areas of the base and coordinated with base's natural resources manager. Aerial applications or fogging with pesticides would be prohibited in areas designated as potential Indiana bat habitat.

The base's conservation goals for the Indiana bat are to maintain and improve conditions for summer roosting and foraging. Monitoring will be conducted periodically using base-wide mist-net surveys. Conservation goals for the Indiana bat are compatible with conservation goals for the bald eagle, eastern massasauga, clubshell, and blazing star stem borer.

BALD EAGLE

The bald eagle was federally listed in 1978 as endangered throughout most of its range. In 1980, only 1,250 nesting pairs were known in the lower 48 states. In recent years, bald eagle populations have increased and are progressing toward species recovery. In 1995, the U.S. Fish and Wildlife Service changed the status of the bald eagle from endangered to threatened in the lower 48 states. Although the bald eagle has a Global Heritage Status rank of G4 (apparently secure), it is listed as endangered by the State of Ohio.

Bald eagles are found throughout much of the contiguous 48 states, primarily along waterways and impoundments. Nationally, numbers of bald eagles have been increasing. Bald eagles may be found year-round in Ohio, with nests known in 20 northern counties, primarily near Lake Erie.

Bald eagles that breed in the northern United States and Canada migrate south in the winter. Ohio has seen an increase in the number of bald eagles in annual winter counts.

Buffer zones are important to protect wintering eagles and their habitat. Buffer zones of a quarter mile are recommended for areas where vegetation does not interrupt line-of-sight vision from the bald eagle to human activity. If sufficient vegetation exists to provide a visual barrier to line-of-sight view of human activity, buffer zones may be reduced to about 100 yards.

Characteristics of bald eagle use at Wright-Patterson Air Force Base include the following:

- Wright-Patterson Air Force Base does not contain any critical habitat for bald eagles, as defined in Section 4 of the Endangered Species Act.
- There are no known records of bald eagles nesting on the base.
- During the winter, they occur on the base only as rare visitors, mostly along the Mad River.
- No traditional communal roosts occur on Wright-Patterson Air Force Base.

Conservation measures for bald eagles in the Wright-Patterson Air Force Base endangered species management plan address both winter and summer habitat requirements. Although bald eagle nesting currently does not occur in the region, continued population expansion could result in eagles establishing nests on or near the base in the future. Therefore, management practices in the base's plan promote suitable nesting habitat for bald eagles within base boundaries. Should bald eagles nest on the base, the plan will be revised to address specific management issues.

The Wright-Patterson Air Force Base endangered species management plan has designated primary bald eagle habitat along the Mad River. The area of primary habitat also extends south along the east boundary of Area C and includes the area of Twin Lakes and the southwestern portion of Marl Road. The plan includes actions to be implemented on the base to protect potential bald eagle habitat and encourage their use of these areas.

The base's conservation goals for the bald eagle are to maintain and improve summer and winter foraging habitat, perching and roosting habitat, and nesting habitat. Conservation goals for the bald eagle are compatible with conservation goals for the Indiana bat, eastern massasauga, clubshell, and blazing star stem borer.

EASTERN MASSASAUGA

The eastern massasauga rattlesnake is listed as endangered by the state of Ohio and has a Global Heritage Status ranking of G3G4 (rounded global ranking of G3). In October 1999, the U.S. Fish and Wildlife Service added the eastern massasauga to the federal candidate species list. Candidate species are in danger of extinction within the foreseeable future. Such species warrant threatened or endangered status pursuant to the Endangered Species Act, but are awaiting processing while higher priority listing actions are addressed. The U.S. Fish and Wildlife Service strongly encourages Department of Defense facilities to initiate conservation actions to slow or halt the decline of such species during the interim period.

The range of the eastern massasauga extends from southern Ontario and western New York to southern Wisconsin and eastern Iowa. It historically has been reported in 28 Ohio counties, but by 1992 was believed potentially to exist in only nine counties. Populations usually are discrete and localized.

Massasaugas are usually found in wet areas, including wet prairies, marshes, and low areas along rivers and lakes. They avoid open water. Massasaugas tend to avoid heavily wooded areas and prefer generally open habitat with less than 50 percent canopy cover with a coarse matrix of trees and shrubs in clusters. In the winter they hibernate, often in crayfish burrows. Their summer active period around the base generally is from mid-May to mid-November.

Eastern massasauga rattlesnakes apparently were quite common when the base was first built. Subsequently, large-scale extermination was practiced. Occasional sightings still occur. Sightings of individual eastern massasaugas generally are reported every two or three years in the vicinity of the Prime Base Engineer Emergency Force (BEEF) Training Area and Twin Base Golf Course. Both areas are on the south side of Hebble Creek Road, just south of Huffman Prairie Flying Field. As a result, the area south of Marl Road and Hebble Creek Road, extending south to the base boundary at Ohio Highway 444 and east to include approximately half of the golf course, has been identified as primary habitat for this species within Wright-Patterson Air Force Base.

The U.S. Fish and Wildlife Service recently solicited the assistance of massasauga experts from across the species' range to develop practical management guidelines. It published the results in a document titled *The Eastern Massasauga Rattlesnake: A Handbook for Land Managers* (Johnson *et al.* 2000). This document was designed to be used as a foundation by land managers for identifying sound conservation actions for massasaugas at their sites and contains the most current management guidance available. The Wright-Patterson Air Force Base Office of Environmental Management used this handbook to prepare the base endangered species management plan and consults it regarding management of this reptile on the base.

Conservation measures and management for this species focus on the area of the base south of Marl and Hebble Creek Roads that has been designated primary habitat. To protect massasaugas and their habitat, Wright-Patterson Air Force Base has restricted new development and other ground-disturbing activities within this area.

Other than habitat destruction and degradation, the greatest threat to massasaugas may come from people who deliberately kill snakes. Therefore, in late 2000 the U.S. Air Force produced an educational brochure on the base's threatened and endangered species. The brochure has a photograph and description of the massasauga and informs base users and visitors that this snake is docile and typically will not strike unless provoked. The brochure also provides contact information for the natural resource manager, so sightings of a massasauga or other rare species may be reported.

Wright-Patterson Air Force Base has established conservation goals to provide habitat, maintain or increase current population levels, and protect massasaugas from adverse impacts resulting from base missions. Within the base boundaries, goals are to:

- Protect and maintain potential hibernation areas for massasaugas;
- Maintain and improve water quality;

- Maintain existing surface and ground water hydrology within the Prime Base Engineer Emergency Force (BEEF) Training Area;
- Maintain and improve existing foraging and basking habitats for massasaugas;
- Maintain and improve existing gestation sites for gravid (pregnant) massasaugas;
- Educate visitors and users at the Prime BEEF Training Area and golf course about massasaugas; and
- Monitor massasauga populations.

These conservation goals are compatible with conservation goals for the Indiana bat, bald eagle, clubshell, and blazing star stem borer.

To manage for massasauga hibernacula, the crayfish species that excavate their wintering burrows need to be managed. Currently, little is known of the habitat requirements of native crayfish. However, it may be possible to maintain or manipulate soil and hydrological attributes that contribute to the well-being of existing crayfish populations. Eventually, it may be possible to create conditions that will promote crayfish and massasauga colonization of other suitable areas at Wright-Patterson Air Force Base. Goals for overwintering habitat for massasaugas are to:

- Identify, protect, and manage key massasauga hibenacula areas within the Prime BEEF Training Area;
- Control use of surface water within the Prime BEEF Training Area and golf course to maintain surface and ground water levels suitable for burrowing crayfish populations;
- Control use of pesticides, fertilizers, and other hazardous materials to protect water quality; and
- Avoid all ground-disturbing activities within confirmed and potential hibernacula areas, and if unavoidable, schedule such activities during the summer reproductive period when snakes are not likely to be present in hibernation burrows.

Preferred foraging and basking habitats are generally open, with less than 50 percent tree canopy cover. Between active foraging periods, massasaugas may seek shelter beneath logs, tree roots, sheet metal, and other objects. Therefore, the U.S. Air Force is managing the Prime BEEF Training Area to maintain and improve existing foraging and basking habitat for massasaugas. Management actions include:

- Conducting vegetative management, including mowing and controlling honeysuckle, within the Prime BEEF Training Area to provide suitable foraging and basking areas;
- Controlling and managing public access and impacts to critical massasauga areas;
- Managing base visitors and users within massasauga habitat in a manner that will not negatively impact the snakes; and
- Increasing education of base visitors and users about massasaugas.

Reported sightings by base visitors and users to the natural resource manager will continue to be an important source of information about the presence and status of this species. In addition, the base periodically will conduct pedestrian surveys of the areas designated as primary habitat.

CLUBSHELL

The clubshell mussel was once widespread and apparently very common throughout most of the Ohio and Maumee River drainages. The species now exists in 10 to 12

isolated populations, most of which are small and peripheral to the species' historic range. The largest remaining population is in the Tippecanoe River in northern Indiana. Agricultural runoff, channelization and impoundment of streams, and domestic and commercial pollution threaten the clubshell. The clubshell is listed as federally and state of Ohio endangered and has a global ranking of G2 (impaired globally).

Results of surveys for the clubshell were reported for Wright-Patterson Air Force Base in 1998 and 1999. Both surveys documented the presence of shells that were greatly weathered, indicating the mussels had been dead for a long period of time. One finding was from a muskrat midden at the confluence of Trout Creek and the Mad River. The other was near the confluence of Mud Run and the Mad River. From these data and the absence of other sightings of this species, it appears that clubshells have been extirpated from the Mad River.

Knowledge of clubshell ecology is limited. However, it is evident that repair of riparian zones and control of non-point source pollution will be essential to restoring habitat for this species. To protect water quality, Wright-Patterson Air Force Base requires that:

- All construction projects that include ground-disturbing activities that are greater than one acre must implement an erosion control plan that involves use of erosion control devices, such as silt screens and straw bales.
- Any ground-disturbing activities near a water source, regardless of size, require the use of erosion-control devices.

Although clubshells have apparently been extirpated from the Mad River, Wright-Patterson Air Force Base has established conservation goals to provide potential mussel habitat, maintain or increase current population levels of freshwater mussels, and protect them from adverse impacts resulting from the base mission. Within the base boundaries, goals are to:

- Maintain and improve water quality within the Mad River and its tributaries;
- Protect and maintain existing riffle/run habitat in the Mad River; and
- Maintain existing vegetation and allow forest regeneration to occur along the Mad River.

These conservation goals are compatible with conservation goals for the Indiana bat, bald eagle, eastern massasauga, and blazing star stem borer.

BLAZING STAR STEM BORER

The historic abundance of the blazing star stem borer is not known, but today it occurs only in disjunct populations throughout the Midwestern United States. Within its known range, it is highly dependent on remnants of mesic tall-grass prairie. This moth is not a federally listed or candidate species, but is listed as endangered by the state of Ohio and has a Global Heritage Status ranking of G3 (vulnerable globally).

The blazing star stem borer occurs as a series of isolated populations throughout the Midwestern United States. These small moths (wingspan of about 1.25 inches) have been found in Iowa, Illinois, Indiana, Michigan, Minnesota, North Dakota, Ohio, and Wisconsin. The only known food plants of the blazing star stem borer are "blazing stars" belonging to the genus *Liatris.*

This species is largely limited by the removal of all but a few remnants of the mesic tall-grass prairie. Even when suitable

habitat is available, the moth has many natural predators, including woodpeckers, mammals such as rodents and skunks, and numerous parasitoids and insects. Small mammals can completely eradicate localized populations of the blazing star stem borer.

Range-wide conservation measures for the blazing star stem borer have focused on protecting known populations by protecting the prairie remnants they inhabit. In particular, land managers have been encouraged to protect an adequate amount of the *Liatris* food plant. Part of the management strategy is to divide prairie habitat into small burn units, so that no blazing star stem borer site is entirely burned in a single year. Also, by spreading food plants over a large area or in several discrete patches, managers can reduce the risk from predators and parasitoids as compared to a comparable number of plants in a single, dense patch.

Fire is an important tool in prairie management. However, the eggs of this species are sensitive to fire, and it is assumed that high mortality results from fall, winter, or spring burns. Therefore, monitoring of the life stages of blazing star stem borer populations is critical when planning to implement prescribed burns.

Three blazing star stem borers were captured with black-light traps during an inventory of lepidopterans (butterflies and moths) at Huffman Prairie in August and October of 1992. Huffman Prairie, which is on the eastern boundary of Huffman Prairie Flying Field, is one of the three locations where this species has been found in Ohio.

Although three *Liatris* species are believed to be native to the Wright-Patterson Air Force Base area, only one, the spiked blazing star (*L. spicata)*, was found in very low numbers (three plants) during a thorough plant inventory of Huffman Prairie in 1990. By 1998, three to four dozen *L. spicata* plants were observed in Huffman Prairie and a few others were noted in nearby fields by botanists conducting a base-wide floral survey. Therefore, potential blazing star stem borer habitat at the base appears to have increased in the past decade.

By developing and implementing a management program in consultation with the Ohio Chapter of The Nature Conservancy, Wright-Patterson Air Force Base has conserved and begun to restore much of Huffman Prairie's native prairie flora and fauna, including moths and butterflies. Huffman Prairie came under the advisory management of the Ohio Chapter of The Nature Conservancy in 1990 through a cooperative agreement between the Conservancy's national office and the U.S. Department of Defense. In cooperation with The Nature Conservancy, the following goals were defined for managing Huffman Prairie:

- Maximize plant diversity in the prairie and restore it to a condition similar to what existed in the 1800s, based on records from botanists of that era.
- Maintain the diversity of nesting grassland birds and prairie moths and butterflies.
- Use the prairie as a tool for educating the general public about the natural history of Huffman Prairie.

The base's management plan for Huffman Prairie contains recommendations for managing and restoring native prairie plants and the endemic animals that it supports, including the blazing star stem borer. These recommendations include:

- Continue to restore and expand the prairie.
- Maximize the buffer surrounding the prairie to limit encroachment from other land uses.

- Continue using prescribed burns as a management and restoration tool, but limit annual burning to half of the prairie. This is done by firing two of the four burn units on a set rotation. For example, in year 1, burn units 1 and 2; in year 2, burn units 2 and 3; in year 3, burn units 3 and 4, and so forth.

These actions would provide additional prairie habitat and ensure the existence of refuge areas from fire for invertebrates, small mammals, and birds.

Wright-Patterson Air Force Base has established conservation goals to provide habitat, maintain or increase current population levels, and protect blazing star stem borers from adverse impacts resulting from the base mission. Within the base boundaries, goals are to:

- Maintain, improve, and/or restore existing prairie habitat.
- Manage habitat conditions to maintain or improve the abundance and spatial distribution of the borer's food plant, *L. spicata* and other native *Liatris* species.
- Monitor blazing star stem borer populations.

These conservation goals are compatible with conservation goals for the Indiana bat, bald eagle, eastern massasauga and clubshell.

To manage for the blazing star stem borer, the moth's food plant needs to be managed. In concert with The Nature Conservancy, the base intends to monitor the development of information by others about the needs of native prairie plants such as *Liatris* species. Eventually, it hopes to manage the soil and hydrological attributes that contribute to the well-being of this plant and others within the prairie community. The goal will be to create conditions that will promote establishment of *Liatris* species in other suitable areas at the base.

OTHER SPECIAL STATUS SPECIES

As described previously, the base's endangered species management plan (Wright-Patterson Air Force Base 2001c) identified 22 other special status species, including birds, reptiles, arthropods, and plants, on the base. In addition, in September 2002, the Ohio Department of Natural Resources announced on the Internet at:

http://www.dnr.state.oh.us/news/sep02/0930moth.htm

the discovery of a new species of moth known to exist in only two locations in the world: Huffman Prairie and Resthaven State Wildlife Area in Erie County. The discovery of the new species, *Spinipogon resthavenensis*, resulted from survey research in native tall-grass prairie habitats in Ohio.

The five species included in the base's endangered species management plan rely on virtually all specialized habitat types available in the vicinity of Huffman Prairie Flying Field and the Wright Memorial (although none of these habitats occur within the flying field's boundaries). These include mature deciduous forests, dead trees, riparian corridors, the Mad River and its tributaries, moist forests and wetlands, and native tall-grass prairie. As a result, the base's strategy to protect and improve these habitats for the five most vulnerable species should benefit all other special concern species on the base.

NATIVE VEGETATION, INCLUDING ECOLOGICALLY CRITICAL AREAS OR UNIQUE NATURAL RESOURCES

The Wright Cycle Company Complex

The vicinity of The Wright Cycle Company complex was developed as a commercial and residential area more than 130 years ago. All areas of native vegetation were removed in association with the area's urbanization. Vegetation within and around The Wright Cycle Company complex now consists of grasses and forbs in yards with ornamental plantings of a wide variety of native and non-native shrubs and trees.

HUFFMAN PRAIRIE

Huffman Prairie is adjacent to and east of Huffman Prairie Flying Field outside the national park boundary. This 109-acre parcel is one of Ohio's largest remnant tallgrass prairies and is designated as an Ohio Natural Landmark. Information in this section is from the *Huffman Prairie Management Plan* (The Nature Conservancy 2001).

From the time the Dayton area was developed in the early 1800s, Huffman Prairie was used for pasture or growing hay. After the area was incorporated into Wright-Patterson Air Force Base, it was seasonally mowed. In 1984 when the scheduled mowing did not take place, the tall prairie plants became readily apparent for the first time in many years. This attracted the interest of naturalists who realized the significance of Huffman Prairie. It was recognized as an Ohio Natural Landmark by the Ohio Natural Areas Council on February 24, 1986. Since then, Huffman Prairie has been managed as a natural area for its prairie elements.

At least 23 species of prairie indicator plants are found in or near the prairie. Dominant native grass species of this prairie are big bluestem, Indian grass, prairie cordgrass, and little bluestem. Examples of flowering species in the prairie include oxeye, black-eyed Susan, gray-headed coneflower, grass-leaved goldenrod, and New England aster. In 1998, the prairie was documented to support limited numbers of the spiked blazing star (*Liatris spicata*), which is the only known food source of the special concern species, the blazing star stem borer.

A management plan for the Huffman Prairie was prepared for Wright-Patterson Air Force Base by The Nature Conservancy in March 1994 and revised in June 2001. Restoration efforts involve prescribed burns to replace aggressive non-native plants with prairie grasses and flowering species. Other restoration activities include transplanting, plowing and reseeding, and establishing buffer areas around the prairie.

HUFFMAN PRAIRIE FLYING FIELD

In the 19th century, Huffman Prairie Flying Field was a wet prairie, but by the time the Wright brothers used the field it was being used as a pasture. Currently, the flying field vegetation consists mostly of non-native grasses such as smooth brome, field fescue, and quack grass. A group of large honey locust trees grow within the flying field. The densely wooded tree row at the western border of Huffman Prairie Flying Field consists primarily of American elm (Wright-Patterson Air Force Base 2001a).

An educational "prairie garden" was planted behind the 1905 replica hangar in 1991 to highlight the natural prairie remnant adjacent to the flying field. This quarter-acre oblong patch of planted prairie grass seed and transplanted wildflowers extends out from the adjacent Huffman Prairie

and is difficult to distinguish from Huffman Prairie. Visitors can walk around the garden's perimeter and view the species associated with a prairie ecosystem without disturbing Huffman Prairie. The prairie garden also is used as a seed source for restoration projects on selected portions of the prairie (Wright-Patterson Air Force Base 2001a).

WRIGHT MEMORIAL

Vegetation throughout the Wright Memorial was documented in two 1997 reports prepared by the National Park Service in association with rehabilitating this site. Information in this section is from these reports. They consist of the:

- *Cultural Landscape Report, Wright Brothers Hill, Wright-Patterson Air Force Base, Ohio* (NPS 1997a); and
- *Cultural Landscape Treatment Plan, Wright Brothers Hill Memorial Plaza* (NPS 1997b)

The park at the Wright Memorial was designed by the Olmsted brothers landscape architecture firm. For almost 100 years, from 1857 to 1950, the design firms of Frederick Law Olmsted, Sr. and his sons played a major role in shaping the American landscape and the character of open space. Except for Boston and New York, Dayton has the highest number of Olmsted designs in the nation.

The Olmsted brothers firm adapted and applied the ideas of Frederick Law Olmsted, Sr. in the design of the Wright Memorial park. The senior Olmsted believed that a park should be a "simple, broad, open space" with "a sufficient number of trees about it to supply a variety of light and shade."

The Olmsted brothers firm's design of the Wright Memorial park included expansive lawns, a large meadow in the eastern portion of the site, an open woodland on the west, and dense tree and shrub plantings along the periphery of the site. The most intensive planting design at the site was around the formal monument in the center of the park. The natural topography of the hillside in the middle of the site plus vegetation massing along portions of the hillside separate the formal, symmetrical design around the monument from the casual character in other parts of the site. More than 100 native and non-native species were used in the planting design.

According to the cultural landscape report (NPS 1997a), changes in vegetation patterns are the most extensive alterations the site has undergone since the park was established in 1940. Senescence, benign neglect, mower damage, competition with naturalized vegetation, and additional tree plantings have impacted the vegetation composition of the original designed landscape over the years. In particular, the understory layer of small flowering trees and shrubs have largely disappeared from the site. Along the south border, a vegetative barrier originally provided screening of the steam pipes and other utilities across the fence. However, the smaller plants in this area are no longer present and the evergreen plantings have matured so that their lowest branches typically are more than ten feet from the ground. As a result, the utilities visually intrude on the site.

Despite these changes, the park still includes at least 72 species of trees and shrubs. Common overstory species include ash, black oak, black walnut, and red oak. Austrian pine and Scotch pine predominate along the southern fence line. The Olmsted brothers firm's design is still highly evident in the open, grassy lawn on the eastern third of the property, the formal plantings that frame the memorial plaza, and the open woodland in the western third that focuses attention on the six prehistoric burial

mounds (see the photograph in the Alternative A description).

The cultural landscape treatment plan (NPS 1997b) presented six recommendations for rehabilitating the vegetation at the Wright Memorial. They include:

- Developing a long-term strategy and plans for replacement of the central ring of shade trees;
- Rehabilitating shrub plantings through structural pruning and replacement in kind;
- Replacing the formal plantings of small trees lining the memorial approach;
- Supplementing the existing plantings at the south boundary to screen the utilities south of the fence;
- Replacing missing ground covers and climbing vines; and
- Reestablishing the vistas from the memorial to Huffman Prairie Flying Field.

Some of these have been implemented, at least in part. However, the plan suggested that many of the actions, particularly the replacement of the central ring of shade trees, be delayed until 2004 to avoid highly visible disturbances during the centennial of flight celebrations.

NEARBY VEGETATED AREAS

Information in this section is from the *Site-Wide Characterization Report, Wright-Patterson Air Force Base, Ohio*, by ICI and SAIC (1995).

Substantial woodlots occur on Wright-Patterson Air Force Base in the vicinity of the Prime Base Engineer Emergency Force (BEEF) Training Area and the Mad River riparian corridor. Vegetation consists of second-growth hardwoods classified as oak/maple forest. Characteristics include the following:

- Sugar maple occurs more frequently in the canopy than oak species (primarily northern red oak and white oak). Less common canopy species include the eastern cottonwood, slippery elm, American elm, white ash, black locust, honey locust, shagbark hickory, Ohio buckeye, sycamore, and tulip tree.
- The understory includes saplings of the canopy species, plus black cherry and flowering dogwood.
- Disturbed forest areas, areas adjacent to roads, and areas with open canopies are dominated by Morrow's honeysuckle and autumn olive.

Numerous areas of grasslands occur in the vicinity of the Wright Memorial and Huffman Prairie Flying Field, including mowed areas along Ohio Highway 444. Frequently mowed areas consist of mixed grass and forb stands. Areas mowed less often include mixed shrub species and early successional hardwood species. Common plants include bromegrass, Kentucky bluegrass, red and white clover, dandelion, English and common plantain, goldenrod, Cleavers bed straw, blackberry, and red morning glory. Because of the seed source available at the nearby Huffman Prairie, prairie flower and grass species can be found in grasslands with suitable ecological characteristics throughout the vicinity.

From the overlook at the Wright Memorial, the woodlot in the Prime BEEF Training Area between Ohio Highway 444 and Hebble Creek Road appears relatively dense and continuous. However, aerial photography reveals that this area has a relatively open canopy and includes buildings, access roads, and small areas of open fields.

In aerial photography in the Greene County soil survey (Garner *et al.*, 1978), the woodlot ended at the base boundary fence. The

Miami Conservancy District property to the east appeared to be a mowed area or old field vegetation. More recent photography from the U.S. Geographical Survey on the Internet shows tree growth in the area between the boundary fence on the west and a dirt track extending north from the intersection of Ohio Highway 444 and Kauffman Avenue to Marl Road. The trees are arranged primarily in a dense strip just north of Ohio Highway 444, in a wide band of more open canopy south of Marl Road, and in a semicircle in the southern part of the plot. East of the dirt track, the vegetation appears to consist of mowed or old field areas in both the pre-1978 soil survey and the recent U.S. Geographical Survey photographs.

SOILS

Unless otherwise noted, information in this section is from the U.S. Department of Agriculture's *Soil Survey of Greene County, Ohio* (Garner *et al.* 1978). This discussion only includes areas near Huffman Prairie Flying Field and the Wright Memorial, because none of the alternatives would involve soil-disturbing activities in or near the western units of the park. Moreover, the west Dayton sites are mapped as "urban land," and their capability and suitability for other purposes is not further characterized by the Department of Agriculture.

The parent material in most areas of Huffman Prairie Flying Field and the Wright Memorial is glacial drift. This term applies to the till and outwash sand and gravel deposited during the Wisconsin age of the Pleistocene Epoch. The general northeast-to-southwest orientation of the major soil areas is closely related to the advances and retreats of the Wisconsin-age glaciation.

As the glacier melted and retreated from its southernmost advance, it left deposits of till and outwash sand and gravel. Before much soil formation had taken place, a layer of wind-blown silt (loess) up to several feet thick was deposited over much of the area. As a result, many soils formed partly in loess and partly in the underlying glacial drift.

The Westland soil, which covers about half of Huffman Prairie Flying Field, formed in loamy outwash covered by a layer of loess. These are very poorly drained, loamy soils that developed in slight depressions on outwash terraces. They have a seasonally high water table for long periods in winter and spring. Garner *et al.* (1978) identify Westland soils in the flying field area as being partly altered or covered by grading operations. Fill materials generally are one to three feet thick.

Organic material is another type of soil parent. Soils with high organic content are described as occurring only "in small areas scattered throughout the county." However, this is the parent material for the Linwood muck soil that covers the remaining portion of Huffman Prairie Flying Field and many surrounding lands, including the Marl Road alignment from the flying field southwest to Hebble Creek. This soil formed in depressions in the Mad River floodplain. It is characterized as having a high water table for most of the year, with common ponding. Linwood muck is subject to soil blowing, especially in open areas when the surface is dry and is not protected by a cover of plants.

The Marl Road alignment from Hebble Creek almost to the boundary fence at Gate 18C is in the Sloan-Fill Land complex. The Sloan soils formed in alluvium (water-transported material) on the floodplain of the Mad River. As much as 50 percent of the original soil has been covered by fill derived from Sloan, Westland, and Linwood soils. Garner *et al.* (1978) identify the fill primarily as being associated with construction of runways, taxiways, and adjacent areas, but the fill south of the creek also could have been installed during the construction of the nearby Huffman Dam.

The Miami Conservancy District Internet site has a geographic information system that creates customized maps. This site is available at:

http://arcims.miamiconservancy.org/website/arcims/

The map from this site indicates that the land underlying the Wright Memorial is a glacial ground moraine. It is composed of till with sand and gravel.

Raub series soils extend from the area of Gate 18C across Ohio Highway 444 and nearly to the top of the Wright Memorial. This silt-clay-loam soil formed in loess and the underlying glacial till. Most of the slopes in this area have slopes of two to six percent (classification RhB) and are characterized as having a moderate hazard of erosion. However, the erosion hazard in the area of 12 to 18 percent slopes (classification RhD) would be considerably higher.

Soils at the top of the Wright Memorial, including the sites of the formal monument and Huffman Prairie Flying Field Interpretive Center, are of the Miamian series. These well-drained soils formed in medium-textured glacial till. Many of the soils in this series are identified as having severe to very severe erosion potentials unless a thick cover of vegetation is maintained. Garner *et al.* (1978) show the soils around the Wright Memorial as including 25 to 50 percent borrow and fill areas and state that "Practices are needed to control erosion and siltation from construction sites."

Wright-Patterson Air Force Base recognizes the need to protect the soil resource on the lands it manages. Therefore the Integrated Natural Resources Management Plan (Wright-Patterson Air Force Base 2001c) requires that "All construction projects that include ground-disturbing activities that are greater than one acre must implement an erosion control plan that involves use of erosion control devices, such as silt screens and straw bales."

A notice of intent must be submitted to the Ohio Environmental Protection Agency for any construction site that will disturb one acre or more of land. A storm water management plan is part of the notice of intent and describes the erosion control measures that will be taken. Regular monitoring is required to ensure that these measures are implemented and effective in erosion control.

Management Policies 2001 (NPS 2000a) include a goal that "soils classified by the U.S. Department of Agriculture, Natural Resources Conservation Service as prime or unique farmland soils are retained." Soils at Wright-Patterson Air Force Base, including those in the vicinity of Huffman Prairie Flying Field and the Wright Memorial, are poorly suited for agriculture. Small areas of prime farmlands are located on the east end of Wright-Patterson Air Force Base and south of the Wright Memorial (Wright-Patterson Air Force Base 2001c). However, these are outside the area that would be affected by management alternatives for Dayton Aviation Heritage National Historical Park and were not considered in the evaluation of alternatives.

WATER QUALITY AND HYDROLOGY

SURFACE WATER HYDROLOGY

Miami River

The Dayton area and entire Miami Valley are within the drainage of the Great Miami River. The drainage area upstream from Dayton is about 2,500 square miles. Flow in the river over the past 90 years at U.S. Geological Survey gauge No. 03270500, about 1,000 feet downstream from the Main Street Bridge (below the Mad River but above Wolf Creek) has ranged from 318 cubic feet per second to 20,000 cubic feet per second, with an average flow of 2,367 cubic feet per second. The lowest flows typically occur in September (average of 767 cubic feet per second) and the high-flow month usually is March (average of 4,258 cubic feet per second) (U.S. Geographical Survey 2004).

In March 1913, unusual rainfall throughout the watershed created a flood that inundated large parts of the city. More than 300 people died and property damage was estimated at $100 million in 1913 dollars (Crouch 1989).

Following this catastrophe, the Miami Conservancy District was formed to prevent similar occurrences. By 1922, five large dams and a system of levees were completed in the Miami Valley in "a water project second only to the Panama Canal" (Eckert 1965). In the past 80 years, the five flood control dams have stored flood waters more than 1,400 times and then released it safely but rapidly to provide storage for the next storm event (Miami Conservancy District 2004).

No flooding has occurred in the city of Dayton since the system came on line. The effectiveness of the Miami Conservancy District system is attested to by the following statement on the Federal Emergency Management Agency (1985) maps for most of the Dayton area: "This area protected from the 500-year flood by levee dike or other structure."

To ensure the continued ability of the flood protection system to meet its goals, the Miami Conservancy District has established

Huffman Dam, seen here from the Wright Memorial overlook, is one of five flood protection dams for Dayton. Huffman Prairie Flying Field is about a mile upstream to the right, with Ohio Highway 444 and the railroad tracks in the foreground.

Levees on the Great Miami River (this is near the entrance to Carillon Historical Park) allow the Miami Conservancy District to rapidly empty the dams in preparation for the next storm without flooding the city.

building restrictions in the retarding basins behind the dams. In a letter to the U.S. Air Force dated November 27, 2001 regarding proposed developments associated with Huffman Prairie Flying Field, the Miami Conservancy District (2001) reiterated its restrictions:

1. *No Habitable Structures are constructed below the Minimum Building Elevation of 830.0 [feet above mean sea level].*

2. *No Non-Habitable Structures are to be constructed below elevation 830.0 without prior acquisition of a permit from the District.*

3. *Any development, which could create a reduction in the storage capacity of the retarding basin, will not be permitted. Prior to the placement of any material on the project site a Compensation Agreement, granting authorization to place material within the retarding basin subject to your agreement to provide compensation, must be acquired.*

In practical terms, the last restriction requires that any changes that could diminish the flood storage capacity of a dam will have to be compensated with additional storage elsewhere in the dam's retention basis, usually at about the same elevation. Formal consultation with the Miami Conservancy District is required under Executive Order 11988, Floodplain Management (42 *Federal Register* 26951 et seq.)

The Wright Cycle Company complex is less than a half-mile west of the Great Miami River and four blocks south of Wolf Creek, one of its major tributaries. Historically, this area was subjected to regular flooding. During the 1913 flood, waters in the vicinity of the cycle shop were said to be more than 12 feet deep (Crouch 1989). However, it is now in the area protected from flooding by the Miami Conservancy District system.

Mad River

The Mad River originates approximately 40 miles north of Springfield, Ohio and flows south and southwest to its confluence with the Great Miami River less than two miles northeast of The Wright Cycle Company complex. The Mad River is located on the western boundary of Wright-Patterson Air Force Base about a mile north of Huffman Prairie Flying Field.

The drainage area of the Mad River above Huffman Dam is about 670 square miles (Miami Conservancy District 2004), or about a quarter of the Great Miami River drainage at the Miami River gage just below the confluence of the Mad River. The U.S. Geological Survey does not maintain a gauging station near Dayton; the only gage on the Mad River is almost 30 miles upstream from the confluence with the Great Miami River. However, based on data from Koltun (1995), the median of the annual flow in the Mad River at Huffman Dam is about 630 cubic feet per second. The channel width of the Mad River in the vicinity of Wright-Patterson Air Force Base ranges from 70 to 150 feet wide (Wright-Patterson Air Force Base 2001a).

The dominant hydrologic feature on the Mad River is Huffman Dam, which is located just over a mile downstream from Huffman Prairie Flying Field and north across Ohio Highway 444 from the Wright Memorial overlook (see photograph on page 112). This 65-foot-high, 3,340-foot-long dam is used exclusively for flood control on the Mad River (Miami Conservancy District 2004). The retention basin upstream of the dam is maintained in an empty state to maximize its ability to control flood waters.

The calculated peak elevation of the probable maximum flood behind this dam is 842 feet, and the spillway elevation is 835 feet above mean sea level. Water storage begins

at an elevation of 788 feet. Water stored to the spillway would total 167,000 acre-feet and would inundate 9,180 acres, a distance of eight miles upstream, almost to the Village of Medway in Clark County. It would require just five days to empty the retarding basin after the Official Plan Flood (a storm equal to the 1913 storm plus 40 percent additional runoff, which serves as the basis of the Miami Conservancy District's 1916 Official Plan). Fortunately, the maximum storage that has been required behind Huffman Dam to date was 15 percent, which occurred following a storm in January 1959 (Miami Conservancy District 2004).

If water were stored to the spillway, Huffman Prairie Flying Field (at an elevation of 804 feet above mean sea level) would be under more than 30 feet of water. Most of Areas A and C of Wright-Patterson Air Force Base also would be flooded. As shown in the photograph, Ohio Highway 444 and the Wright Memorial are above the spillway and dam elevation.

Other Surface Waters

Other surface water bodies located in the vicinity of Huffman Prairie Flying Field include:

- Hebble Creek, which is a perennial stream that forms part of flying field's south boundary. The watershed for Hebble Creek encompasses about eight square miles. The creek averages 25 to 30 feet in width and has a normal water depth in May of about a foot (ICI and SAIC 1995).
- Trout Creek, which forms part of the flying field's north boundary. Trout Creek has water flowing year-round. It is not considered a "navigable water" of the United States, but it is subject to the U.S. Army Corps of Engineers' Section 404 permit process.
- Gravel Lake and Twin Lakes, the closest of which is located approximately 4,000 feet southwest of Huffman Prairie Flying Field on Marl Road.
- Drainage ditches adjacent to roads and runways.

SURFACE WATER QUALITY

The portion of the Mad River that runs through Wright-Patterson Air Force Base has been designated by the Ohio Environmental Protection Agency for the following purposes:

- Warmwater habitat;
- Agricultural water supply;
- Industrial water supply; and
- Primary contact recreation.

The "Mad River Watershed" fact sheet, produced as part of the Miami Conservancy Watershed Initiative, rates the biological health of the Mad River near Wright-Patterson Air Force Base as "good." However, there are threats to the health of the Mad River watershed, including pollutants in the water (38 percent) and hydromodification (62 percent), which consists of changes made to the shape and slope of the stream bank and stream channel. Among the threats from pollutants, about 40 percent are from agricultural practices in the drainage area. Point sources and contaminated soils each account for about 30 percent of the pollutants (Miami Conservancy District 2002).

The U.S. Air Force has an active program to prevent illicit discharges from base activities and ensure compliance with surface water standards (Rogers 2004). This includes implementing provisions associated with two National Pollutant Discharge Elimination System permits that have been issued under the Clean Water Act:

- Permit No. #1IO00001, dated June 2004, mandates monthly storm water sampling of 23 drainage outfall areas located throughout the base.
- Permit No. #OHC000002, dated April 2003, mandates that projects be implemented to control illicit discharges from base activities.

GROUND WATER HYDROLOGY

Episodes of erosion about three million and 700,000 years ago created deeply entrenched valleys in the area's bedrock system. Glacial processes of the Illinoian (500,000 years ago) and Wisconsinan (100,000 years ago) ages filled the deep valleys with layers of outwash and till (Wright-Patterson Air Force Base 2001c).

Outwash deposits that were laid down by glacial melt water are of high importance to the ground water hydrology and quality of the Dayton area. More than 250 feet of sand and gravel fill the Mad River Buried Bedrock Valley underlying the Mad River drainage, including the areas of Huffman Prairie Flying Field and Huffman Dam. These glacial outwash deposits within the Mad River Buried Valley Aquifer are very permeable and exhibit high transmissivity and hydraulic conductivity (Wright-Patterson Air Force Base 2001c). This type of outwash deposit is known as a valley train (Ohio Department of Natural Resources 2004).

Because of the valley train system, ground water and surface water are more completely connected in the Mad River watershed than in any other river system in Ohio. Land use practices can affect both ground water and surface water in this highly interconnected system (Miami Conservancy District 2002).

As a result of the interconnectivity of surface and ground water in the Mad River valley train system, the Mad River has the highest dry weather index (a measure of the sustained flow between flood periods) in the state of Ohio at 0.19 million gallons per day per square mile (Wright-Patterson Air Force Base 2001c). The large amounts of cool ground water from the aquifer that enter the Mad River reduce the stream temperature sufficiently to sustain a healthy population of trout in the river (Ohio Department of Natural Resources 2004).

The Mad River Buried Valley Aquifer in the area of Huffman Prairie Flying Field is very prolific, yielding more than 2,000 gallons per minute to water supply wells. It is highly responsive to applied stresses. Precipitation, stage of the Mad River, and pumping of wells in the vicinity have nearly immediate effects on hydraulic head levels in the aquifer (Wright-Patterson Air Force Base 2001a).

The Mad River Buried Valley Aquifer under Huffman Prairie Flying Field and the surrounding area is a designated sole source aquifer under *United States Code*, Section 1424(e) of the Safe Drinking Water Act (53 *Federal Register* 15876) and *Ohio Administrative Code* Section §3745-27-07(B)(5). This aquifer is heavily used as a municipal and industrial source of water (Wright-Patterson Air Force Base 2001a).

Dayton pumps millions of gallons of water each day from this aquifer and is the largest user of ground water in the state (Ohio Department of Natural Resources 2004). The city of Dayton well fields at Huffman Dam and Rohrer's Island are located hydraulically downgradient from Huffman Prairie Flying Field. The combined pumping of these well fields can exert significant hydraulic control over the direction and rate of ground water movement within the area. Ground water that passes through the Huffman Dam well field is captured by pumping wells in the Rohrer's Island well field. The Rohrer's Island well field creates a regional sink for ground water in the bur-

ied valley aquifer (Wright-Patterson Air Force Base 2001a).

Huffman Prairie Flying Field falls within the city of Dayton's one-year wellhead protection capture zone. The purpose of the wellhead protection program is to provide control mechanisms to discourage the storage of hazardous chemicals above the aquifer. As part of the city of Dayton wellhead protection program, ground water quality monitoring wells have been installed in and around the Rohrer's Island well field, between the southwest boundary of Wright-Patterson Air Force Base and Huffman Dam, and additional locations within the Miami Conservancy District preserve (Wright-Patterson Air Force Base 2001a). There are also numerous monitoring wells within the perimeter of Wright-Patterson Air Force Base.

PROTECTING GROUND WATER QUALITY

Wellhead Protection Area

Wright-Patterson Air Force Base and the city of Dayton have a memorandum of agreement for the protection of the municipal wellfield downgradient from the base. The Twin Lakes area just west of Huffman Prairie Flying Field is specifically identified in this agreement. As part of the program to implement the agreement, the U.S. Air Force tracks its inventory of regulated substances within the area of concern and ensures that the volumes of these materials in storage do not increase appreciably (Rogers 2004).

The U.S. Air Force also has a wellfield protection program in conformance with the Safe Drinking Water Act. The delineation phase (Wright-Patterson Air Force Base 2000) has been endorsed by the Ohio Environmental Protection Agency, which has regulatory authority under the Safe Drinking Water Act. The remaining plan is awaiting endorsement pending submittal of revisions by the U.S. Air Force. The concept for this plan is identical to that of the agreement between the U.S. Air Force and city of Dayton and is intended to regulate substances that may be detrimental to waters of the area that are used for municipal water supply purposes (Rogers 2004).

Hazardous Waste Sites

Information in this section is summarized from the *Final Environmental Assessment for the Huffman Prairie Flying Field Cultural Landscape Report* (Wright-Patterson Air Force Base 2001a).

Past operations at Wright-Patterson Air Force Base and many other military installations led to the improper disposal of hazardous substances. In response, the U.S. Department of Defense implemented the Installation Restoration Program to identify, assess, and control potential environmental contamination from past operations and waste disposal practices. At Wright-Patterson Air Force Base, 11 geographically based operable units are used to manage more than 60 sites of concern.

Operable Unit 5 is a collection of discrete sites in the western part of Wright-Patterson Air Force Base that were, or may have been, used for handling or disposing of hazardous chemical materials in the past. Discrete sites include a landfill, fire training area, tanks site, and burial site. Trout Creek forms the north boundary of the operable unit, the east boundary passes through the west side of Huffman Prairie Flying Field (although no discrete sites are located in this national park unit), and the south boundary is between Hebble Creek Road and Ohio Highway 444. The west side of Operable Unit 5 extends beyond the Wright-Patterson Air Force Base boundary onto adjacent property owned by the Miami Conservancy District.

Investigations of this area started in the early 1980s, and a removal action of source material was begun in September 1989. A ground water recovery and treatment system to intercept contaminated ground water before it could contaminate the city of Dayton's drinking water supply began operations in June 1992. The system's extraction well exerts significant hydraulic control over the direction and rate of ground water movement in the area and has been demonstrated to be effective in preventing the movement of contaminants toward the Dayton well fields. As of 2001, nine chemicals in water from the extraction well continued to occur at levels above the site's remediation goals. The contaminants are removed in the treatment plant and the water is discharged in accordance with the plant's National Pollutant Discharge Elimination System (NPDES) permit.

WETLANDS AND FLOODPLAINS

WETLANDS

The west Dayton neighborhood that contains The Wright Cycle Company complex was developed as a "streetcar suburb" to the city of Dayton starting in 1868 (Crouch 1989). Any wetlands that may have occurred in this area were quickly filled in and leveled to support the many homes and small commercial enterprises built throughout the area.

Huffman Prairie Flying Field is in a low area near the Mad River. In a widely quoted letter to Octave Chanute dated June 21, 1904, Wilbur Wright complained that "the ground is an old swamp and is filled with grassy hummocks some six inches high, so that it resembles a prairie dog town" (Walker and Wickam 1986; Crouch 1989; NPS 2002a).

The base Integrated Natural Resources Management Plan (Wright-Patterson Air Force Base 2001c) confirms that filling and hydrologic alterations that would have eliminated wetlands occurred throughout the base, potentially including Huffman Prairie Flying Field. Section 4.0, Wetlands Management, states:

> *Much of [Wright-Patterson Air Force Base] lies within the floodplain of the Mad River. The majority of land within this floodplain has been filled to reduce potential for flooding. In addition, levees have been constructed along the river and its tributaries, and the tributaries have been dredged and channelized to enhance drainage.*

Trout and Hebble Creeks, which are located respectively on the north and south borders of Huffman Prairie Flying Field, are among the creeks that were straightened and channelized. These activities probably contributed to the reduced wetland character of the flying field, which now has a relatively smooth topography with a cover of upland grasses and no evidence of the "old swamp" that presented challenges to the Wright brothers' early take-offs and landings.

Wetlands of Wright-Patterson Air Force Base were last inventoried and delineated in 1999. Wetland habitats were defined in accordance with criteria outlined in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (Federal Interagency Committee for Wetland Delineation 1989) using the Routine Onsite Determination Method defined in the *Corps of Engineers Wetlands Delineation Manual* (U.S. Army Corps of Engineers 1987). The U.S. Air Force is in the process of updating the 1999 wetlands inventory and delineation. These are updated every five years, in accordance with U.S. Army Corps of Engineers recommendations.

The wetland inventory and delineation identified 22.2 acres of jurisdictional wetlands on Wright-Patterson Air Force Base. Maps of these wetlands are included in the base Integrated Natural Resources Management Plan.

Figure 4-2 of that plan shows one wetland, designated B9, at the Wright Memorial. The plan notes that this small wetland is mowed regularly and is rutted from mowing activities. The management strategy for this wetland involves altering the mowing schedule "to keep mowers out of Wetland B9 when the ground is saturated. This will reduce soil compaction and may increase plant diversity within the seep wetland." It also recommends informal monitoring for nuisance species with control measures to be developed if they are noted.

The same figure shows seven jurisdictional wetlands in Wright-Patterson Air Force Base east of Huffman Prairie Flying Field.

- The environmental assessment for the Huffman Prairie Flying Field cultural landscape report identifies a 5.9-acre wetland designated C11 north of Gravel Lake and Marl Road (Wright-Patterson Air Force Base 2001). Over the past five years, this wetland has been severely impacted by the nearby ground water pump-and-treat system, and by extensive pumping by the city of Dayton at their nearby wellfield. This has lowered the water table sufficiently in this area to drain most of this wetland. Only two small areas of wetland remain.
- According to the base's 1999 wetland management plan, the 7.58-acre Wetland C18, south of Marl Road at Twin Lakes, is the largest wetland on the installation. It was determined to have a high ecological quality, enhanced by its large size and the diversity of habitat types within the wetland.

Collectively, these two wetlands represent more than half of the jurisdictional wetland area on the base. The other five jurisdictional wetlands (including C7, which is east of C18, and C8, C9, C10, and C14, which are north of C11) are much smaller.

The Integrated Natural Resources Management Plan does not include management strategies for the wetlands north of Marl Road. For the wetlands south of Marl Road, it states in part:

> *Wetlands in training areas (C7 and Cl8) will be protected from mechanized land-clearing, earthmoving, and vehicle maneuvers. If such activities are desired within a wetland located in a training area, the activity must comply with the regulations . . . including acquisition of all required permits.*
>
> *Wetland expansion could be implemented in existing training areas. It probably will be less desirable to create/restore wetlands in active training areas than in portions of the base that are relatively unused. The resource commitment for expanding wetlands in training areas will be similar to those described for wetland creation / restoration along the Mad River.*

FLOODPLAINS

Many of the older parts of Dayton were in the floodplain of the Great Miami River and its tributaries. In 1913, low-lying areas throughout the city experienced severe flooding in an event known as the Great Dayton Flood. More than 300 people died and property damage was estimated at $100 million in 1913 dollars (Crouch 1989).

The Wright Cycle Company complex is in a low area less than a half-mile west of the Miami River and four blocks south of Wolf Creek, one of the river's primary tributaries. Waters in the vicinity of the cycle shop during the 1913 flood were said to be more than 12 feet deep, and the Wrights' father had to be rescued from their home by boat. The downstairs floors of the Wright brothers' cycle shop at 1127 West Third Street and their home at 7 Hawthorne Street were described as "a total loss" (Crouch 1989). The Paul Laurence Dunbar house, which is closer to Wolf Creek, was also in the flood zone, as was the area of Carillon Historical Park, which is near the southeast bank of the Miami River (Eckert 1965).

Following this catastrophe, the Miami Conservancy District was formed to prevent similar occurrences. By 1922, five large dams were completed in the Miami Valley in "a water project second only to the Panama Canal" (Eckert 1965). One of these, Huffman Dam, is located on the Mad River just west of Huffman Prairie Flying Field and is evident from the Wright Memorial

overlook. In the past 80 years, the five flood control dams have stored flood waters more than 1,400 times. The storage behind Huffman Dam has been required 135 times (Miami Conservancy District 2004).

The Miami Conservancy District also acquired large tracts of land, including Huffman Prairie Flying Field and the farmlands that later were developed as the Wright Memorial and large parts of Wright-Patterson Air Force Base (Walker and Wickam 1986). The District presently owns and manages more than 6,600 acres of land (Miami Conservancy District 2004). These include the lands extending north from the Kauffman Avenue intersection with Ohio Highway 444 to the boundary of Wright-Patterson Air Force Base.

Floodplain mapping for the area is available from the Federal Emergency Management Agency (1985) as part of its Flood Insurance Rate Map program. Because of the effectiveness of the Miami Conservancy District facilities, the maps show that The Wright Cycle Company complex, the Paul Laurence Dunbar State Memorial, and Carillon Historical Park are all now in Zone C, outside the 100-year flood zone and in areas where minimal flooding would be expected. The effectiveness of the Miami Conservancy District system is attested to by the following statement on the Federal Emergency Management Agency (1985) map: "This area protected from the 500-year flood by levee dike or other structure."

(The "500-year flood" has a predicted occurrence frequency of one year in 500. The probability of having a 500-year flood within any single year is 0.2 percent. It does not mean that such floods can occur only once in 500 years; although highly unlikely, such flooding could occur more than once in a single year.)

Huffman Prairie Flying Field is almost a mile south of the Mad River. Because it is upstream from the Miami Conservancy District's Huffman Dam, it is subject to the flooding that occurs on this Miami River tributary. The Federal Emergency Management Agency (1981) map shows Huffman Prairie Flying Field to be within the Mad River's 100-year floodplain, along with much of the surrounding lands within Wright-Patterson Air Force Base.

In 1994, the U.S. Army Corps of Engineers used input data from the Miami Conservancy District to determine floodplain elevations upstream from Huffman Dam. The 10-, 25-, and 100-year floodplain elevations were determined to be 804.7, 808.4, and 814.3 feet above mean sea level, respectively (Wright-Patterson Air Force Base 1997). Correspondence with the Miami Conservancy District regarding the cultural resource report for Huffman Prairie Flying Field indicates that the five-year floodplain of the Mad River upstream from the dam is 801.4 feet above mean sea level and that Marl Road and parts of Huffman Prairie Flying Field are below this elevation (Wright-Patterson Air Force Base 2001a). The entire Huffman Prairie Flying Field is managed by the U.S. Air Force for an expected flood frequency of 1 year in 10, commonly called the 10-year floodplain (Ferguson and Perdue 2003).

The Mad River's 100-year floodplain extends south to, but does not include, Ohio Highway 444 (Federal Emergency Management Agency 1981). South of the road, Wright Brothers Hill rises more than 100 feet. The availability of the Wright Memorial on this hill, close to Huffman Prairie Flying Field but outside the 100-year floodplain, was a key factor in selecting this location for the Huffman Prairie Flying Field Interpretive Center (NPS 1997c).

WILDLIFE AND WILDLIFE HABITATS, INCLUDING AQUATIC LIFE

THE WRIGHT CYCLE COMPANY COMPLEX

Wildlife habitat is largely absent in the vicinity of The Wright Cycle Company complex. This area was urbanized more than 130 years ago, and habitat is limited to ornamental plantings in yards. Wildlife primarily consists of highly mobile bird species tolerant of human disturbance, such as the English sparrow, European starling, robin, rock dove (commonly called pigeon), and northern cardinal.

HUFFMAN PRAIRIE FLYING FIELD VICINITY

Huffman Prairie Flying Field is a mowed field of largely non-native grasses. The flying field itself provides very limited wildlife habitat, primarily feeding habitat for birds and bats that favor open fields. In contrast, a wide range of wildlife habitats occur in the western portion of Wright-Patterson Air Force Base around Huffman Prairie Flying Field. These are all very limited in size but collectively provide a high-value wildlife area. Many of the wildlife species that inhabit this area move freely among these habitats, which include the following:

- A riparian corridor at least 165 feet wide is being maintained by the U.S. Air Force on each side of the Mad River. This area includes mixed young and maturing, second-growth hardwood forests with hydrologic requirements ranging from saturated soils to uplands. Limited riparian areas also have developed along parts of Hebble and Trout Creeks.
- The 109-acre Huffman Prairie is one of Ohio's largest remnant tall-grass prairies and supports a unique assemblage of small, prairie-dependent species, particularly arthropods.
- East Twin Lake, West Twin Lake, and Gravel Lake are three of the four large, open-water lakes on the base.
- Two large jurisdictional wetlands representing more than half of all wetland areas on Wright-Patterson Air Force Base are located near Gravel and Twin Lakes.
- The Prime Base Engineer Emergency Force (BEEF) Training Area has a woodlot of moist forest with a relatively open canopy.
- Mowed areas, road margins, and old fields all provide habitat for species that utilize grasslands, plus high-value edge areas.

The following information on terrestrial wildlife near Huffman Prairie Flying Field is from the cultural landscape report environmental assessment for Huffman Prairie Flying Field (Wright-Patterson Air Force Base 2001a)

A fairly diverse assemblage of wildlife populates the vicinity of Huffman Prairie Flying Field, including songbirds, hawks, owls, groundhogs, red and eastern gray squirrels, eastern chipmunks, skunks, cottontail rabbits, pheasants, and white-tailed deer. Wildlife species hunted in the Licensed Hunting Preserve adjacent to the flying field include pheasant, squirrel, white-tailed deer, rabbit, groundhog, coyote, raccoon, red fox, and mourning dove.

An ecological survey was conducted in the mid 1990s at Operable Unit 5, a hazardous waste management unit just west of Huffman Prairie Flying Field. Reptiles were observed in areas surrounding the Twin Lakes, including the northern water snake, eastern garter snake and massasauga rattle-

snake. Amphibians included the American toad, northern leopard frog, and bullfrog.

Fifty-one species of birds were identified during the ecological survey of Operable Unit 5. Forested and maintained lawn habitats supported such species as the common flicker, black-capped and Carolina chickadees, tufted titmouse, American robin, wood thrush, and common grackle. Additional species observed in brush/scrub areas include the northern cardinal, purple finch, house finch, song sparrow, cedar waxwing, and European starling.

WRIGHT MEMORIAL

The Wright Memorial includes mowed lawns and ornamental plantings of native and non-native species in a designed landscape. By the late 1990s, much of the understory layer of small flowering trees and shrubs that would provide wildlife habitat had disappeared from the site (NPS 1997a). However, flowering trees and shrubs have recently been reintroduced at the formal monument area. Wildlife primarily consists of the birds listed in the preceding paragraph that use forested and maintained lawn habitats.

The Wright Memorial is fenced with a chain-link fence and bounded on the north by Ohio Highway 444 and on the south by a large utility area and the developed area of Wright Field. Therefore, aside from highly mobile species such as birds and insects, there is little movement of wildlife into this park.

AQUATIC HABITAT

The aquatic habitat nearest Huffman Prairie Flying Field is provided by Hebble Creek, which is on the south boundary of Huffman Prairie Flying Field. Within and near Hebble Creek:

- Aquatic invertebrates include water striders, water threaders, and various amphipods, isopods, and crayfish.
- Fish include the creek chub, bullhead catfish, largemouth bass, smallmouth bass, and several species of panfish.
- Turtles, northern water snakes, and leopard frogs are among the reptiles that have been observed.
- There is use by waterfowl, including mallards (ICI and SAIC, 1995).

As an intermittent stream, Trout Creek's aquatic life would be limited to the same amphibian and invertebrate species found in Hebble Creek.

Gravel and Twin Lakes are hydrologically connected with Hebble Creek when, after periods of high precipitation and high flow, Hebble Creek floods into these lakes. In addition to supporting the species identified for Hebble Creek, these lakes are stocked with fish for recreational fishing and weed control. Some of these species include channel catfish, rainbow trout, and white amur. A wide variety of waterfowl use the lake surfaces, especially during spring and autumn migration.

HUNTING

Hunting has been conducted on Wright-Patterson Air Force Base since the 1930s. Section 8.0 of the Wright-Patterson Air Force Base (2001c) Integrated Natural Resources Management Plan defines the base's hunting and fishing program. It states that "The goals of the fishing and hunting programs are to manage these resources to provide meaningful quality outdoor recreational experiences while maintaining an acceptable population of game species." Hunting opportunities include the following:

- Most small game and waterfowl species may be hunted within state sea-

sons within specific locations on the base.

- Bow-hunting for white-tailed deer results in the harvest of approximately 14 deer per year during a season that generally runs from early October through January. Deer bow-hunting areas cover the most acreage on base, and approximately 60 hunters participate per year.
- Deer gun season is usually for one week after Thanksgiving in a much smaller area of the base. Only about three deer per year have been taken the past several years during deer gun season.

The Trout Creek Licensed Shooting Preserve adjacent to Huffman Prairie Flying Field on the north and west is one of the largest hunting areas on the base. Other hunting areas include the Mad River corridor and the Prime BEEF Training Area (which is closed to hunting when training is occurring).

Concerns about visitor safety have led the U.S. Air Force to close Huffman Prairie Flying Field during the one-week gun season for deer. Based on increased park visitation, the U.S. Air Force will be reviewing all of its hunting policies on Wright-Patterson Air Force Base to determine if these activities are compatible with the nearby presence of the national park unit (Ferguson and Perdue 2003). However, this review and its outcome are outside this general management plan amendment.

ARCHEOLOGICAL RESOURCES

THE WRIGHT CYCLE COMPANY COMPLEX

The area of The Wright Cycle Company complex may have been used by prehistoric peoples for a variety of purposes. Its location within a mile of both the Great Miami River and Wolfe Creek would have made it an attractive setting. However, all surface evidence of use by prehistoric peoples was removed when the area was urbanized starting in 1869.

The area was undeveloped farmland when speculators established a horse-car line to attract working class citizens, so few archeological resources from the early period of settlement would be expected. However, there are some vacant lots where derelict buildings were removed; these areas are likely to have historic archeological resources buried in former backyards, cellars, privies, or wells.

WRIGHT MEMORIAL

During the construction of the park at the Wright Memorial, six mounds attributed to the Early Woodland culture were discovered on the west side of the site. The mounds range from 20 to 50 feet in diameter and are two to four feet high. In August 1939, a shallow test pit was dug in one of the smaller mounds by Dr. Henry P. Shetrone, director of the Ohio State Archaeological and Historical Society and professor of archeology at The Ohio State University. The excavation confirmed that these are burial mounds (Honious 2003). On February 12, 1974, the area designated the Wright Brothers Memorial Mound Group was listed in the National Register of Historic Places.

No prehistoric habitation areas have been identified on the Wright Brothers Hill bluff. However, artifacts have been recovered from the fields southeast and northeast of the burial mounds that may have been associated with them (ICI and SAIC 1995).

The Wright Memorial area, excluding the mounds, which are protected, was tested for archeological sites during a survey conducted in 1991 and 1992. No prehistoric sites or historical sites were found. A complete list of surveys conducted at Wright-Patterson Air Force Base is included on pages 28 and 29 of the Wright-Patterson Air Force Base Integrated Cultural Resources Management Plan.

The Wright Memorial area does not include any known historic archeological resources. The bluff overlooking Huffman Prairie Flying Field was undeveloped when it was selected as the site for a memorial to the Wright brothers. The Civilian Conservation Corps (CCC) members who graded the site, constructed the roads and parking areas, established the drainage system, and set the base of the memorial were not housed at the site; they were from the African American Camp Miami, Ohio Number 20, located in Vandalia (Honious 2003). The historic roadway and other features completed by the Civilian Conservation Corps form part of the cultural landscape and could be included in the expanded National Register nomination form.

HUFFMAN PRAIRIE FLYING FIELD

There are no known prehistoric archeological resources in the vicinity of Huffman Prairie Flying Field or along the Marl Road corridor. Two prehistoric sites are documented nearby, north of Marl Road and east of Water Road. Both are outside the area that would be affected by management al-

ternatives for Dayton Aviation Heritage National Historical Park.

This floodplain area close to the Mad River probably was an attractive site for a variety of uses by prehistoric peoples. However, the area was farmed for more than a century after the Dayton area was settled, and artifacts could have been broken up or turned under by plowing or removed by collectors. Subsequently, as described earlier in the section on soils, some parts of the flying field may have been altered or covered by grading operations that placed fill materials to a depth of up to three feet. These grading activities may have buried or destroyed archeological resources at the disturbed sites. However, this area is in a floodplain that periodically accumulated layers of silt, so there is a potential for deeply buried prehistoric sites.

The primary land use in the area in the late 19th century was farming, although there were some small manufacturing facilities. After the 1913 flood, the construction of Huffman Dam just a mile downstream from the flying field required the abandonment of all features in the retarding basin. Farms, industries, railroads, roads, and the entire town of Osborn were relocated outside the retarding basin, and Huffman Prairie Flying Field was abandoned (ICI and SAIC 1995).

In 1990, historical mapping identified almost 120 potential historical archeological sites on Wright-Patterson Air Force Base from the European settlement period (ICI and SAIC 1995). Known sites in the Huffman Prairie Flying Field area include the Marl Road corridor/interurban railway alignment, which is described in more detail under the heading “Cultural Landscapes,” and the site of the 1910 hangar at Huffman Prairie Flying Field, which was identified in 1994 using surface geophysics. No physical remains, such as postholes, from the Simms Station platform, were found during archeological testing.

HISTORIC STRUCTURES AND BUILDINGS

As indicated by its name, Dayton Aviation Heritage National Historical Park's significance is based foremost on its historic features. As stated in Section 5.1.3.2.2 of *Management Policies 2001* (NPS 2000a), "Historic and cultural units of the national park system are nationally significant by virtue of their authorizing legislation or Presidential proclamation."

In implementing planning processes, Section 5.2 of this document directs that "superintendents will provide opportunities for the same level of review and consideration by the Advisory Council on Historic Preservation and the Secretary of the Interior that the Advisory Council's regulations require for undertakings that may adversely affect national historic landmarks." This directive is consistent with the management approach in the preceding paragraph and Section 110(f) of the National Historic Preservation Act, which states:

> Prior to the approval of any Federal undertaking which may directly and adversely affect any National Historic Landmark, the head of the responsible Federal agency shall, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to such landmark, and shall afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the undertaking.

In the park's 1992 establishing legislation, Congress identified the areas that would be included within the park primarily by the historic structures and buildings that were present. Four out of 31 buildings within the boundaries of the West Third Street Historic District were classified as "out-of-period." However, almost all existing buildings in the vicinity of the park are the original structures built on the sites, and retain their historic significance as part of the district.

The Dayton Aviation Heritage Preservation Amendments Act of 2000, which enlarged the park, again specified areas in the same manner. (See Appendix A for the text of both acts.) Specifically, based on the more recent legislation, the park includes the following structures and buildings:

(1) A core parcel in Dayton, Ohio, which shall consist of The Wright Cycle Company building, Hoover Block, and lands between.

(2) The Setzer building property (also known as the Aviation Trail building property), Dayton, Ohio.

(3) The residential properties at 26 South Williams Street and at 30 South Williams Street, Dayton, Ohio.

(4) Huffman Prairie Flying Field, located at Wright-Patterson Air Force Base, Ohio. [No structures or buildings were named at this site.]

(5) The Wright 1905 Flyer III and Wright Hall, including constructed additions and attached structures, known collectively as the John W. Berry, Sr. Wright Brothers Aviation Center, Dayton, Ohio.

(6) The Paul Laurence Dunbar State Memorial, Dayton, Ohio.

Among these, the residential properties at 26 and 30 South Williams Street date from the latter part of the 19th century and are part of the West Third Street Historic District and the landscape surrounding The Wright Cycle Company building. The newly constructed additions and attached structures to Wright Hall at Carillon Historical Park are not historic. The current uses and conditions of these historic structures and buildings were included in the earlier description of Alternative A – No Action / Continue Current Management.

NATIONAL HISTORIC LANDMARKS

National Historic Landmarks are nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States. Today, fewer than 2,500 historic places bear this national distinction (NPS 2004).

Four National Historic Landmarks are within Dayton Aviation Heritage National Historical Park. The following information on the date of designation and significance of each of these is from Appendix B of Honious (2003).

Paul Laurence Dunbar House, designated December 29, 1962. From 1904 until his death, this modest two story red brick building was the residence of Paul Laurence Dunbar (1872-1906), the distinguished poet. His poetic use of dialect to convey both the joys and sorrows of an oppressed people brought him national acclaim.

Huffman Prairie Flying Field, designated June 21, 1990. The Huffman Prairie Flying Field is the site used by the Wright brothers from 1904 to 1905 to develop and test the world's first practical airplane, the Wright Flyer III. It was on this field that the Wright brothers continued their quest to conquer the air after their return from Kitty Hawk, North Carolina, in 1903. During these years the Wright brothers perfected the technique of flying and developed a powered airplane completely controllable by the pilot; able to bank, turn, circle, and make figure eights; withstand repeated takeoffs and landings; and remain airborne and trouble free for more than half an hour. The field is significant as the home of the Wright Company School of Aviation (1910-1915) and the Wright Exhibition Company (1910-1911). The field served as the testing ground for every model of plane designed and manufactured by the Wright Company.

Wright Cycle Company and Wright and Wright Printing, designated June 21, 1990. The Wright Cycle Company building is the site where, from 1895 to 1897, Wilbur and Orville Wright began to manufacture their own line of bicycles. This activity contributed the know-how and financial resources critical to their experiments in aviation. Their years of working with sprockets, spokes, chain drives, tires, metals, lathes, drills, and engines were of great value to the pair in designing and building their first gliders and flying machines. The Wright brothers also operated the Wright Printing Shop on the second floor of the building during those years.

Wright Flyer III, designated June 21, 1990. The Wright Flyer III (1905) is the world's first airplane capable of sustained controlled flight and suitable for practical applications. It was with this airplane that the Wright brothers perfected the technique of flying and developed a utilitarian flying machine that ushered in the aviation age. With the development of the Flyer III, the Wright brothers had for all practical purposes completed their conquest of the air.

OTHER FACILITIES LISTED IN THE NATIONAL REGISTER OF HISTORIC PLACES

The four National Historic Landmarks described above are listed in the National Register of Historic Places. Several other facilities within the park or nearby areas that could be affected by the management alternatives also are listed in the National Register of Historic Places.

Individually listed features include the Wright Brothers Memorial Mound Group, which was added in 1974.

Historic districts listed in the National Register of Historic Places located in the vicinity of park units include the:

- Dunbar Historic District, designated June 30, 1980.
- West Third Street Historic District, designated March 10, 1988. All of The Wright Cycle Company complex buildings are contributing elements to this district, but the two-block district includes about 20 other historic buildings that are contributing.

OTHER HISTORIC STRUCTURES AND BUILDINGS

The formal monument at the Wright Memorial, which was dedicated on August 19, 1940, is the dominant feature of the park on Wright Brothers Hill. As described in Honious (2003):

> *A seventeen-foot shaft constructed of pink North Carolina granite surrounded by three steps dominates the center of the memorial. Along one of the walls that encircle the shaft are four bronze plaques that discuss significant aspects of the memorial and the Wright brothers. The subjects of the four plaques are the Huffman Prairie Flying Field, the names of early aviators, the contribution of Wright Field, and the prehistoric mounds located on the memorial grounds.*

The entire Wright Memorial, including the formal monument and surrounding park, is eligible for listing. Because of the nearby presence of the listed Wright Brothers Memorial Mound Group, the U.S. Air Force manages the entire 27-acre park, as a listed resource (Ferguson and Perdue 2003).

Outside the Huffman Prairie Flying Field and Wright Memorial areas, Wright-Patterson Air Force Base includes four historic districts and multiple individually eligible buildings. The most recent inventory identified 260 buildings that are eligible for listing in the National Register of Historic Places (Ferguson and Perdue 2003). None of these facilities would be affected by any of the alternatives for managing Dayton Aviation Heritage National Historical Park.

TREATMENT OF HISTORIC STRUCTURES AND BUILDINGS

The Secretary of the Interior is responsible for establishing professional standards and providing advice on the preservation and protection of all cultural resources listed in or eligible for listing in the National Register of Historic Places. These standards are presented in *The Secretary of the Interior's Standards for the Treatment of Historic Properties: with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (The Secretary of the Interior 1995a).

Four treatments for cultural resources are included in the standards. The selection of the most appropriate treatment is based in large part on the relative importance in history. For example, National Historic Landmarks usually warrant preservation or restoration. Buildings that contribute to the significance of a historic district but are not individually listed in the National Register more frequently undergo rehabilitation for a compatible new use (The Secretary of the Interior 1995a). Definitions of the treatment categories and their application in Dayton Aviation Heritage National Historical Park and nearby areas are identified below.

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Preservation requires retention of the greatest amount of historic fabric, along with the building's historic form, features, and detailing as they have evolved over time. Within Dayton Aviation Heritage National Historical Park, preservation has been the primary treatment applied to the Wright Flyer III, Wright Hall, and Paul Laurence Dunbar State Memorial.

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values. The rehabilitation standards acknowledge the need to alter or add to a historic building to meet continuing or new uses while retaining the building's historic character. Rehabilitation has been used for the Hoover Block, which now serves as the Wright-Dunbar Interpretive Center; the Setzer Building, which is the Aviation Trail Visitor Center and Museum; and the residence at 30 South Williams Street, which now functions as the park headquarters. Rehabilitation by others is occurring throughout the West Third Street Historic District. Rehabilitation is the recommended treatment for Huffman Prairie Flying Field (NPS 2002a) and the Wright Memorial (NPS 1997a).

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The restoration standards allow for the depiction of a building at a particular time in its history by preserving materials from the period of significance and removing materials from other periods. Restoration is the treatment being applied at The Wright Cycle Company building.

Reconstruction is defined as the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location. The reconstruction standards establish a limited framework for re-creating a vanished or non-surviving building with new materials, primarily for interpretive purposes. At Huffman Prairie Flying Field, the replica 1905 hangar and catapult-and-rail launch system are reconstructions that help visitors understand and appreciate activities at this site.

CULTURAL LANDSCAPES, INCLUDING URBAN QUALITY AND DESIGN OF THE BUILT ENVIRONMENT

Section 1502.16, Environmental Consequences, of the National Environmental Policy Act identifies eight areas that should be considered in every environmental impact statement unless there is good justification for dismissing them from further consideration. They include "(g) Urban quality, historic and cultural resources, and the design of the built environment."

Individual archeological and historic cultural resources were described in the preceding two sections. Urban quality and the design of the built environment are embodied in the consideration of cultural landscapes.

The concept of cultural landscapes evolved from the need to carry historic preservation and interpretation beyond the protection of individual buildings. A cultural landscape refers to the entire fabric of a historic site that contributes to the appearance and ambience experienced in that area at an important or targeted time in history. For example, in addition to a building, contributing elements of a cultural landscape could include associated outbuildings, ornamental plantings from the target period, and period walkways, walls, and curbstones.

A cultural landscape is defined as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values." Definitions of cultural landscape types from *Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes* (NPS 1996) and their applicability at Dayton Aviation Heritage National Historical Park are provided below.

A historic designed landscape is a landscape consciously designed or laid out by a landscape architect, master gardener, architect, or horticulturist according to design principles. The landscape may be associated with a significant person, a trend, or an event in landscape architecture. Aesthetic values play a significant role in designed landscapes. The Wright Memorial is an example of a historic designed landscape.

A historic vernacular landscape is a landscape that evolved through use by the people whose activities or occupancy shaped that landscape. The landscape reflects the physical, biological, and cultural character of those everyday lives. Function plays a significant role in vernacular landscapes. They can be a single property such as a farm or a collection of properties such as an urban historic district. Within Dayton Aviation Heritage National Historical Park, The Wright Cycle Company complex is a historic vernacular landscape.

A historic site is a landscape that is significant for its association with a historic event, activity, or person. Huffman Prairie Flying Field is a historic site, but also could be classified as a historic vernacular landscape.

An ethnographic landscape contains natural and cultural resources that associated people define as heritage resources. Examples include religious sacred sites and massive geological structures. Dayton Aviation Heritage National Historical Park does not include any ethnographic landscapes.

As described under the heading "Historic Structures and Buildings," *The Secretary of the Interior's Standards for the Treatment of Historic Properties: with Guidelines for*

Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings (The Secretary of the Interior 1995a) identifies four primary treatments for historic resources. A companion document, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (The Secretary of the Interior 1995b), describes how these same treatments are to be applied to cultural landscapes. Based on cultural landscape studies, rehabilitation is the recommended treatment at the Wright Memorial (NPS 1997a) and Huffman Prairie Flying Field (NPS 2002a). Although a formal study has not been conducted, rehabilitation also is being applied throughout the West Third Street Historic District, which includes The Wright Cycle Company complex.

Wright Memorial

A cultural landscape report (NPS 1997a) and cultural landscape treatment plan (NPS 1997b) were prepared for the Wright Memorial. They documented existing conditions, evaluated the resources' significance and integrity, and provided guidance for their treatment. A brief summary of some of the elements of the cultural landscape described in these reports that are relevant to the evaluation of the alternatives is provided here.

The earlier section entitled "Vegetation, including Ecologically Critical Areas or Unique Natural Resources," includes information on the history of the landscape at the Wright Memorial. This includes its design by the Olmsted brothers firm, the species in the original plantings, and the current condition and appearance of the vegetation.

The 27-acre Wright Memorial is roughly rectangular with an east-west length approximately twice its width. This park is defined first by its topography. It is at the northern terminus of a prominent ridge above the Mad River and is the area's dominant topographic feature. The area is essentially level to the west and into the large utility area to the south. The eastern half of the park slopes down 110 feet to the level of the floodplain. On the north, an embankment drops precipitously to the flood plain at a 65 percent slope.

Visitors enter via a gate on the southeastern side of the hill. The asphalt road follows the natural contours of the land, running the length of the southern perimeter. At the top, the road passes in front of the new interpretive center, which was completed and opened to the public on December 17, 2002. The road ends in the parking area on the west side of this building. The interpretive center was not part of the original design and is a non-contributing feature of the cultural landscape. Eventually, however, it will be considered a historical component as part of the facilities constructed in the Dayton area to celebrate the centennial of flight.

The memorial is a 17-foot-high shaft surrounded by a formal arrangement of steps, paths on north-south and east-west axes, paths that form concentric circles around the monument, low walls, and vegetation. Features in this area would not be affected by any of the alternatives.

Most visitors enter the memorial area via the south axis path, which effectively starts at the interpretive center doorway. From the memorial, visitors usually walk to the overlook to the north. The overlook area is bounded by a three-foot-high limestone wall. The vegetation on the bluff is kept below the height of the observation area wall.

The views from the north axis overlook wall and from the end of the east axis are important because they provide the oppor-

tunity to put Huffman Prairie Flying Field in context with its surroundings. Linear features that are highly visible from these points include the east-west oriented Ohio Highway 444, the railroad tracks that parallel the highway on the south, and Huffman Dam, which is perpendicular to the highway. On clear days, the runway and taxiways of Wright-Patterson Air Force Base are visible. The primary runway orientation is southwest to northeast.

The west axis from the overlook focuses attention on the six prehistoric burial mounds. These mounds were discussed previously as archeological resources. Features in this area would not be affected by any of the alternatives.

A contributing feature is defined as one that was "present during the period of significance and [that] possesses historic integrity reflecting its character at that time or is capable of yielding important information about the period." The park's character-defining elements that are contributing features relate to spatial organization, topography, circulation, vegetation, structures, site amenities, and the character of adjoining properties. The period of significance for the Wright Memorial is 1938 through 1944.

The evaluation of integrity was conducted in terms of location, design, setting, materials and workmanship, feeling, and association. The results in the cultural landscape report (NPS 1997a) consistently were expressed using such terms as "very good," "have not been compromised," and "are essentially intact."

Except for the new interpretive center and expanded parking lot, changes in vegetation patterns are the most extensive alterations the site has undergone since it was established. Other changes include the relocation of the entrance walls, partial realignment of the entrance road, and the removal of two comfort stations. (Restrooms are now available in the interpretive center.)

The cultural landscape report and treatment plan identified rehabilitation as the preferred treatment approach and provided specific information regarding its implementation. Many of the recommended actions were completed prior to the celebration of the centennial of flight in 2003. However, the replacement of the central ring of shade trees around the memorial, which are beginning to decline with age, was delayed until after the celebration. Two of these trees were removed prior to 1997, and plans currently are underway to replace them.

Huffman Prairie Flying Field

The National Park Service recently prepared a cultural landscape report for Huffman Prairie Flying Field (NPS 2002a). The report includes a site history, a landscape evaluation, identification of treatment alternatives and a preferred alternative, a landscape implementation plan, and an interpretation plan. Information in this section is from that report.

The description in the flying field's National Historic Landmark nomination cites significance associated with two periods: 1904-1905 and 1910-1916. The cultural landscape report points out that during the earlier period, the Wright brothers' experiments were unique, and they were accomplishing a feat that was taking place at no other location. From the National Historic Landmark nomination form:

> *At Huffman Field, the Wrights perfected the technique of flying and developed a powered airplane completely controllable by the pilot; able to bank, turn, circle, and make figure eights; withstand repeated takeoffs and landings; and remain airborne trouble-free for more than a half hour.*

In contrast, by 1910, other flight schools had been established, and the activities taking place at this site were no longer extraordinary. For this reason, the cultural resource report determined that the internationally significant events of 1904-1905 should be the focus of the cultural landscape at Huffman Prairie Flying Field.

The national park unit in this area includes only the 84.4 acres within the original property line of west Dayton banker Torrence Huffman's pasture. However, the cultural landscape report confirmed that the flying field's cultural landscape includes a larger area. Additional important components of the cultural landscape applicable to management alternatives for this unit of Dayton Aviation Heritage National Historical Park are described below.

Marl Road Corridor/Interurban Railway Alignment. In 1895, the Dayton, Springfield, and Urbana Electric Railway was formed. The segment of the 41-mile-long rail line in the vicinity of Huffman Prairie Flying Field was built on a subgrade of clay and loam, with tracks ballasted with gravel. Throughout 1904 and 1905, the Wright brothers used "the interurban" to travel the eight miles from their home and bicycle shop in west Dayton to the flying field. Starting in 1910, they and their students used this railway to access the flight school they established at Huffman Prairie.

After the 1913 flood, the Miami Conservancy District acquired the land within the Huffman Dam retarding basin, including Huffman Prairie Flying Field and the interurban railway alignment. The railway was rerouted around the site, and the ties and rails in the basin were salvaged for scrap.

An automobile road, called the Dayton-Springfield Pike, had been established parallel to the railway alignment. Following incorporation of Huffman Prairie Flying Field into the new military installation, the road was severed at the boundary and the portion inside the fence became part of the base's road system. In 1942, the central segment of this road was paved with concrete to create part of the Wright-Patterson Air Force Base runway system. The south segment, which extends from the fenced boundary to the runway, became the little-used Marl Road.

Remnants of the Dayton, Springfield, and Urbana interurban roadbed are still visible parallel to Marl Road within the Air Force base but outside the national park unit. A replica of the Simms Station platform, which the Wright brothers used to disembark and board the electric train, was constructed in 2004 at a safe distance from the hazardous cargo pad safety zones. This site is about 100 yards west of the original platform, which was located at the north corner of the flying field, east of the current location of the parking lot.

Ongoing Activities at Wright-Patterson Air Force Base. The continuum of flight between Huffman Prairie Flying Field and existing activities at this important military installation that bears the Wright brothers' name is a key component of the cultural landscape and one that is highly obvious as the noises from jets taking off obliterate all other sound. At almost any other cultural site, the noise and sight of low-flying aircraft would be intrusive. However, as stated in the cultural landscape report:

> *Today, the flying field stands at the end of the flight line within the Air Force base, and truly serves to link past and present. Modern jet aircraft soar over the site where the Wright brothers first taught themselves and others to fly. Around the field, the tradition of aviation-related invention and innovation begun by Wilbur and Orville Wright in the early twentieth century has continued to the present day.*

> *As modern aircraft fly overhead, visitors to this historic site have much to consider, standing on a plot of ground where the Wright brothers taught themselves to fly and developed an invention that changed the world.*

The cultural landscape report evaluated Huffman Prairie Flying Field and the surrounding cultural landscape based on nine landscape characteristics: natural systems and features, spatial organization, land use, cultural traditions, circulation, topography, vegetation, building and structures / cluster arrangement, and views and vistas. Based on these criteria, the assessment of integrity was "High" for location and association, and "Medium" or "Medium-High" for design, setting, materials, and feeling. Only workmanship was ranked as having a "Low" integrity, with a notation that "Physical evidence from the historic period is limited. The site is dominated by reconstructed features which are non-historic, and therefore more interpretive in nature."

Overall, the assessment of the cultural landscape was that:

> *Visitors to Huffman Prairie Flying Field still have many visual clues as to what the flying field looked like when the Wright brothers flew their aircraft here. Remnants of the original boundaries exist: Marl Road and the present tree line mark the site of the former [railway] and the row of trees that once bordered the field. Symmes Road marks the path of the former Yellow-Springs Road, the northern boundary of the flying field. In the center of the field, where the locust tree around which Wilbur and Orville practiced circling once stood, a small copse of trees stands today. Most significantly, the flying field remains an open expanse of land.*

The cultural landscape report recommended rehabilitation as the most appropriate landscape treatment at Huffman Prairie Flying Field because it allows flexibility for protecting the historic landscape while accommodating appropriate contemporary use. It also identified a number of actions that could be implemented at the site.

- Many of the proposed actions, such as constructing new pedestrian bridges to move visitors from the parking area to the flying field, establishing a mowing program to differentiate features such as the oval flight path, and installing wayside exhibits, have been implemented by the U.S. Air Force.
- Some actions, such as the relocation of the Combat Arms Training and Maintenance facility and the removal and mitigation of its former site, currently are being implemented.
- Others actions, including improved visitor access to the flying field, are still under consideration. A major component of this general management plan amendment is the determination of the most appropriate method for visitor movement between the Huffman Prairie Flying Field Interpretive Center and the flying field.

The Wright Cycle Company Complex

A cultural landscape report has not been prepared for The Wright Cycle Company complex, but this National Historic Landmark property and the surrounding historic district comprise a landscape whose historic context is readily apparent. The landscape includes such features as the size and location of the streets, the siting and assortment of the buildings, the design and materials used in structural features, and remnants of early landscaping attempts. These elements of a landscape aptly evoke a sense of place and of historic events.

The information in this section was derived primarily from the National Register of Historic Places nomination form for the West Third Street Historic District (Gannon

1987). The area also was characterized in the historic structure report for the Hoover Block (the building that now houses the Wright-Dunbar Interpretive Center) (Quinn Evans/Architects 1998) and the National Register of Historic Places nomination form for National Historic Landmark status for the Hoover Block (NPS 1989). The Hoover Block was included in the National Register of Historic Places as Wright and Wright Printing and was included in the same designation as The Wright Cycle Company building on June 21, 1990.

The West Third Street Historic District is a 10.1-acre area that encompasses West Third Street between Shannon Street and Broadway. It also includes a short extension south on South Williams Street that includes The Wright Cycle Company complex.

Third Street is one of Dayton's main east-west thoroughfares. The Third Street corridor west of the Great Miami River was never an affluent area. Crouch (1989) reports that it was a streetcar suburb, founded in the late 1860s by entrepreneurs who established a horse-car rail line and "hoped that the availability of cheap transportation would increase the value of their landholdings, and encourage the sale of new lots and homes in outlying areas to workmen previously forced to live within walking distance of the industrial and commercial core of the city." He says the area was populated by "working class citizens" and describes it as "a tight, cramped, urban neighborhood."

The vicinity of the West Third Street Historic District was a commercial zone of two- and three-story brick buildings constructed between 1885 and 1924. The district is described as "resembling a small 'main street.'" The buildings on West Third Street had stores on the ground level with offices and apartments above. The facades were primarily brick, with stone and metal trim. The South Williams Street extension of the historic district includes The Wright Cycle Company building (built in 1886), two residential structures to the south, and two residential structures across the street that help convey the area's context. The residences in the area were built beginning in 1869 (Gannon 1987).

The West Third Street Historic District includes several vacant lots and four out-of-period buildings. However, 28 buildings within the district were identified as contributing features in the National Register of Historic Places nomination (Gannon 1987). Those historic district buildings now within the boundaries of The Wright Cycle Company complex include the:

- Hoover Block, which now contains the Wright-Dunbar Interpretive Center;
- Setzer Building, which now houses the Aviation Trail Visitor Center and Museum;
- Wright Cycle Company building at 22 South Williams Street;
- Unrestored residential structure at 26 South Williams Street; and
- Residential structure at 30 South Williams Street that has been rehabilitated and now serves as headquarters for the park.

Other contributing structures that could be affected by the alternatives include the:

- Pekin Theater, also called the Enterprise Building, at 1026-1028 West Third Street; and
- An unnamed building, commonly called the Fish Market, built in a "vernacular" style at 1032 West Third Street.

Evidence of the integrity of the historic scene that was present during the period of use by the Wright brothers and Paul Laurence Dunbar is best provided by the rec-

ommendation letters that accompanied the National Register of Historic Places nomination form.

Patrick B. Nolan was the Head of Archives and Special Collections, and associate professor, at Wright State University. In a letter dated September 11, 1987 he wrote:

> *[M]uch of that neighborhood and its landmarks remain intact today. Buildings that housed the Wright Cycle company and Wright and Wright Printers still stand, as does the home of Paul Dunbar. Blocks of houses and business buildings familiar to those men remain to allow the visitor to recreate the early turn of the century streetscape.*
>
> *The West Side was not a fancy place. The shops were small scaled to meet the needs of local residents. The houses were small as well, and usually very plain. But it largely remains intact, a sort of 19th century survivor in late 20th century city.*

Tom D. Crouch was Chairman, Department of Social and Cultural History at the Smithsonian Institution's National Museum of American History. He also authored an authoritative biography of the Wright brothers (Crouch 1989). His letter, dated September 1, 1987, states:

> *The neighborhood began as a classic street car suburb, a fact that remains in evidence today. Both along the major thoroughfares of the commercial district and in the residential areas set a block or two back from Third Street, you can still see many elements of the neighborhood that would have been familiar to the Wrights.*

Rehabilitation of the historic scene has been occurring since 1982, when Aviation Trail, Inc. discovered and subsequently purchased the intact buildings that had been the site of early business enterprises of the Wright brothers. Since then, coordinated and complementing actions of multiple park partners have made major contributions to rehabilitating the historic landscape. These measures were described under the heading "Connected, Cumulative, and Similar Actions" and include:

- Rehabilitation of the buildings within The Wright Cycle Company complex by the National Park Service, Aviation Trail, Inc., and city of Dayton.
- Establishment and enforcement of historic district zoning and architectural controls for the West Third Street Historic District by the city of Dayton.
- The in-progress rehabilitation of the Pekin Theater and Fish Market, plus other reconstruction, design assistance, and community coordination projects in the area by Wright Dunbar, Inc.
- City-led programs to renovate homes and landscaping in the area and provide infill on vacant lots that matches the historic character of the neighborhood.

ECONOMICS AND SOCIOECONOMICS, INCLUDING SOCIALLY OR ECONOMICALLY DISADVANTAGED POPULATIONS

DEMOGRAPHICS AND ECONOMICS

Dayton Aviation Heritage National Historical Park is located within Greene and Montgomery Counties. Unless otherwise indicated, data listed below for these counties are for the year 2000 and are from the U.S. Census Bureau's Internet site at http://www.census.gov.

Demographic and economic statistics for Greene County include the following:

- Greene County includes 266,350 acres, with a density of 365.5 people per square mile. The county seat is Xenia.
- From 1990 to 2000, the population of this county increased by 8.2 percent, from 136,731 to 147,886. This was higher than the statewide growth of 4.7 percent for the decade.
- It is projected that the population will grow to 151,764 by 2010; 156,588 by 2020; and 158,859 by the year 2030 (Ohio Department of Development 2001).
- Almost 40 percent of people employed in Greene County were government employees, followed by service trade employees (17.8 percent) and fire, insurance, and real estate (15.6 percent).
- There were 2,835 business establishments in Greene County. The businesses with the most employees were retail trade; professional, scientific, technical services; and accommodations / food services. Together, industries contributed more than $530 million in wages to the economy (U.S. Census Bureau 2001).
- The Greene County labor force includes 78,098 people. There were three establishments within the category "Museums, Historical Sites, and the Like." Collectively, they employed fewer than 99 people. The 259 "Construction" establishments employed 1,520 people (U.S. Census Bureau 2001).

Demographic and economic statistics for Montgomery County include the following:

- Montgomery County includes 297,865 acres, with a density of 1,210.9 people per square mile. The county seat is Dayton.
- From 1990 to 2000, the population of this county decreased by 2.6 percent, from 573,809 to 559,062. In contrast, the population of the state increased by 4.7 percent over the decade.
- It is projected that the population will decrease to 540,418 by 2010; 528,798 by 2020; and 524,062 by the year 2030 (Ohio Department of Development 2001).
- Within the county, 25 percent of employed people worked in manufacturing, followed by service trade employees (22.8 percent) and general trade labor (15.1 percent).
- There were 13,084 business establishments in Montgomery County. The businesses with the most employees were manufacturing, health care and social assistance, and retail trade. Together, industries contributed more than $2.5 billion in wages to the economy (U.S. Census Bureau 2001).
- The Montgomery County labor force includes 279,365 people. There were 16 establishments within the category

"Museums, Historical Sites, and the Like." Collectively, they employed 286 people. The 961 "Construction" establishments employed 11,651 people (U.S. Census Bureau 2001).

The economies of Greene and Montgomery Counties are dominated by Wright-Patterson Air Force Base, which is the largest employer in the Census Bureau's four-county Dayton-Springfield Metropolitan Statistical Area. It also is the single largest employer in the state of Ohio and the largest employer among Air Force bases worldwide(Wright-Patterson Air Force Base 1997). The following statistics indicate the economic impact of this military installation on the Dayton area (Wright-Patterson Air Force Base 2003):

- There were 20,364 employees on the base payroll as of September 30, 2003. Of these, 40 percent were military.
- The annual payroll to Wright-Patterson Air Force Base employees in the local area totaled almost $1.1 billion annually. There also were 27,386 military and civilian retirees in the area who received annual disbursements of $615 million. The total payroll for military, civilian, and retirees associated with the base was more than $1.7 billion.

Table 6 presents demographic and economic data in 2000 for areas around Dayton Aviation Heritage National Historical Park. Compared to the population of the entire state, Montgomery County had greater racial diversity, a lower percentage of its population in the labor force, more families with incomes below the poverty level, lower median housing values, and more vacant housing. Compared to state statistics, Greene County citizens were somewhat more affluent and better educated with less racial diversity and higher housing values.

The Wright Cycle Company complex is within the U.S. Census Bureau's Zip Code Tabulation Area 45407 in Montgomery County. (Zip code tabulation areas do not always match U.S. Postal Service zip codes. The Census Bureau's tabulation area 45407 was not changed by the recent Postal Service merger of the 45407 and 45402 zip codes). This neighborhood meets the criteria for minority or low-income populations as defined in the Environmental Protection Agency's (1998) *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis.*[4.] Within the zip code tabulation area in the year 2000:

- The age distribution was similar to that of Montgomery County and the state of Ohio.
- The ethnic heritage of 93 percent of the population was Black or African American. In contrast, 20 percent of county citizens and fewer than 12 percent of Ohio citizens were of Black or African American heritage.
- The year 2000 unemployment rate was more than four times that of the county. Just over a third of the population was in the labor force, compared to half the population in the county and almost 62 percent statewide.
- The percentage of the adult population that had not attained a high school education (more than 32 percent) was twice that of the county and state (16 percent).
- Median household income was less than half that of the county and state. Because of the low income levels, more than 30 percent of families in the zip code tabulation area lived below the poverty level, compared to 8.3 percent for the county and 7.8 percent for the state.

4. Environmental justice, as identified in Executive Order 12898 and defined by the Office for Environmental Justice for the U.S. Environmental Protection Agency, plus definitions of minority populations and low-income populations, are provided in the section "Alternative A Impacts on Economics and Socioeconomics, including Socially or Economically Disadvantaged Populations."

TABLE 6: YEAR 2000 DEMOGRAPHIC AND ECONOMIC SUMMARY FOR COUNTIES AND ZIP CODE TABULATION AREAS THAT INCLUDE DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK

Characteristic	State of Ohio	Greene County	Montgomery County	45407 Zip Code Tabulation Area (Includes The Wright Cycle Company complex)	45433 Zip Code Tabulation Area (Includes Huffman Prairie Flying Field and the Wright Memorial)
Population	11,373,540	147,886	559,062	10,816	3,140
Median age	36.2	35.6	36.4	34.0	24.6
Age: under 5 years (percent)	6.6	5.9	6.6	7.0	12.8
Age: 18 years and over (percent)	74.6	76.1	75.3	68.5	61.2
Age: 65 years and over (percent)	13.3	11.8	13.7	13.7	0.2
Race: White (percent)	85.0	89.2	76.6	4.5	80
Race: Black or African American (percent)	11.5	6.4	19.9	93.0	12.7
Race: Asian (percent)	1.2	2.0	1.3	0.2	2.2
Educational attainment, over 25 years old: high school graduate (percent)	83.0	87.8	83.5	67.5	98.7
Persons in labor force	5,402,175	78,098	279,635	3,957	1,972
Population in labor force (percent)	61.5	52.8	50.0	36.6	62.8
Unemployment rate (percent)	3.2	3.3	3.4	13.8	.05
Median household income	$40,956	$48,656	$40,156	$19,043	$50,965
Family income below poverty level (percent)	7.8	5.2	8.3	30.3	0.8
Median gross rent	$515	$587	$525	$398	$736
Median value for housing unit	$103,700	$121,200	$95,900	$50,600	$139,300
Vacant housing units (percent)	7.1	5.0	7.7	22.8	1.9

Source: U.S. Census Bureau's Internet site at http://www.census.gov.

- Almost a quarter of the housing units were vacant, compared to fewer than eight percent for the county. This value did not include the many vacant lots in the neighborhood where derelict buildings had been removed. The median value of housing units was 53 percent of the county-wide median value and 49 percent of the statewide median value.

Huffman Prairie Flying Field and the Wright Memorial are within Zip Code Tabulation Area 45433. The demographics within Zip Code Tabulation Area 45433 are unusual because the area includes Wright-Patterson Air Force Base. The population within this zip code tabulation area is more racially diverse than Greene County or the state of Ohio, younger, considerably better educated, more heavily employed (including almost 50 percent in the armed forces), and more affluent. Citizens within this zip code tabulation area do not meet the criteria that indicate environmental justice concerns.

PRIMARY AND SECONDARY ECONOMIC IMPACT OF THE PARK

Data on visitation at Dayton Aviation Heritage National Historical Park and its economic effects are available on the NPS' Internet at: http://www2.nature.nps.gov/ npstats.

According to this site, visitation to Dayton Aviation Heritage National Historical Park was relatively stable between 1996 and 2002, ranging from about 35,000 and 50,000 visitors per year. In 2001, 9,698 (27 percent) were local visitors and 26,669 (73 percent) were non-local visitors. In 2003, because of the centennial of flight celebration, visitation to the park increased to 100,616.

The park's impact on the local economy in the year 2001 (48,489 visitors) was estimated by the NPS Public Use Statistics Office using the MGM2 economic model and is summarized in Table 7. If future park visitation reverts to the levels that occurred from 1996 to 2002, the economic effect of the park will be similar to the Table 7 values. If visitation remains at the year 2003 levels, economic effects will be about twice those shown in the table.

Of the total 48,489 visitors to Dayton Aviation Heritage National Historical Park in 2001, 20 percent were local day visitors, 55 percent were non-local day visitors, 20 percent were hotel visitors, and five percent were camp visitors. Among these groups, a total of 24,248 party days were spent at the park, and the average spending per party day was about $114.

TABLE 7: ECONOMIC IMPACT OF VISITOR SPENDING BY BUSINESS SECTOR FOR DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK

Sector	Sales (in millions)	Personal Income (in millions)	Jobs
Primary effects	$2.31	$0.86	55
Motel, hotel, B&B, and cabins	$0.77	$0.27	15
Campsites	$0.05	$0.02	1
Restaurants and bars	$0.64	$0.23	18
Admission and fees	$0.30	$0.10	9
Retail	$0.33	$0.17	9
Other	$0.22	$0.07	3
Secondary effects	$1.28	$0.47	17
Total	$3.59	$1.33	72

Source: NPS Public Use Statistics Office.

Secondary effects of park visitor spending caused a "ripple effect" through the local economy that created another $0.47 million in personal income and 17 jobs. Therefore, considering both primary and secondary effects, visitor spending at Dayton Aviation Heritage National Historical Park in the year 2001 was responsible for supporting 72 jobs, $3.59 million in sales, and $1.33 million in personal income.

The park's employment of people and operating budget also benefit the local economy, as follows:

- The park's annual budget is $1.64 million. Approximately 80 percent of this amount is paid to staff in salaries and wages.
- The NPS staff at Dayton Aviation Heritage National Historical Park includes 15 permanent, three part-time, and four temporary employees.
- The park pays approximately $5,850 per month in utility costs and $1,000 per month in purchases of supplies.

In addition to the operations budget that includes staff salaries and purchases of utilities and supplies, there are other funds for repair, rehabilitation, and construction.

REVITALIZATION OF THE WRIGHT-DUNBAR NEIGHBORHOOD

Even before Dayton Aviation Heritage National Historical Park was established in 1992, supporters viewed the park as the engine for the revitalization of the Wright-Dunbar area. They believed that park visitors would want to purchase goods and services such as meals and snacks, souvenirs, and overnight lodging, and that more businesses would establish themselves in the neighborhood to meet that need. The revitalized neighborhood would then draw more people from other areas of Dayton, such as restaurant patrons who did not necessarily visit the national park. The aesthetics of the revitalized neighborhood would prove attractive to people interested in living and working in a historic setting close to downtown. When these people moved into the neighborhood, they would further expand the economic base for businesses in the area by creating a larger local customer base.

The Ohio Historical Society was the original group serving as an advocate and catalyst for the revitalization of the area. The Ohio Historical Society established the Paul Laurence Dunbar State Memorial in 1936 and successfully maintained and operated this facility through challenging social and economic times.

In 1982, the Ohio Historical Society was joined by Aviation Trail, Inc. in their revitalization effort. As described in the section entitled "Connected, Cumulative, and Similar Actions," this organization recognized the importance of redeveloping the neighborhood to their ability to preserve sites associated with the invention and early development of aviation. Aviation Trail, Inc.'s *Development Plan for the Wright Brothers Inner West Enterprise Zone* became the first blueprint for the rehabilitation of the entire Wright-Dunbar area. They also were directly responsible for the preservation of The Wright Cycle Company building and Hoover Block and the rehabilitation of the Setzer Building, which serves as the Aviation Trail Visitor Center and Museum. The Hoover Block was rehabilitated by the National Park Service and now houses the Wright-Dunbar Interpretive Center.

Since the early 1990s, the city of Dayton has been a key player in the rehabilitation of the Wright-Dunbar area. Some of the actions of the city were described earlier in

the section on "Connected, Cumulative, and Similar Actions."

The Main Street Program, implemented locally by Wright Dunbar, Inc., also has had an important role in the revitalization of the Wright-Dunbar neighborhood. Its involvement was described previously under the heading "Connected, Cumulative, and Similar Actions."

Collectively, these and other actions have had a substantial beneficial effect on the neighborhood. For example, the average market value of property developed in the year 2000 was $141,000, almost three times the average value of existing housing in the neighborhood (Stock 2000). The changes have attracted new residents with higher incomes who can support higher property values. This has led to a greater diversity of ethnic backgrounds and income groups in the neighborhood.

CRIME

Crime statistics for the city of Dayton are from the unpublished records of the Dayton Police Department Investigations Division. Information on the compilation of crime statistics was provided in a personal communication from Scott Barker, statistics coordinator with the Dayton Police Department.

Prior to 1998, the city collected crime data using the Uniform Crime Reporting (UCR) system, which had been in effect since 1929. In 1998, Dayton changed to the more standardized National Incident-Based Reporting System (NIBRS). Therefore, current data cannot be compared with information collected before 1998.

Table 8 summarizes the city-wide crime statistics in several categories of serious crimes for the year 2002. As shown in the table, the overall Dayton crime rate per 100,000 people was more than twice the national average and was substantially greater than the national average in every category listed.

Since at least the 1960s, the Dayton Police Department has collected crime statistics within geographically consistent "police sectors." Because these sectors do not correlate with any geographic units used by the U.S. Census Bureau, such as census tracts or zip code tabulation areas, it is not possible to define crime rates for areas other than the entire city in standardized terms such as incidents per 100,000 population.

The Wright Cycle Company complex is within the northwest portion of police sector 300. This sector is bounded on the north by West Third Street and on the east by the Great Miami River. Its south and west boundary is an arc extending along the former alignment of a long-removed railroad track from the river north of Columbia Street to West Third Street near Conover. The area within police sector 300 includes approximately 20 standard city blocks. Across West Third Street is police sector 400, which is about 12 blocks in size.

Although statistics are not available to characterize crime rates on a per capita basis, the West Third Street corridor, including police sectors 300 and 400, were described as 20 or 25 years ago being "the most crime-ridden area in the city of Dayton" (Dayton Police Department, Barker 2004). Aviation Trail, Inc. members have stated that they commonly observed prostitution and drug dealing outside The Wright Cycle Company building and Hoover Block in the 1980s and early 1990s.

TABLE 8: CRIME STATISTICS FOR THE CITY OF DAYTON IN 2002

Crime Type	Dayton Year 2002 Total	Dayton per 100,000 People	National per 100,000 People
Overall crime index	15,932	9,530.08	4,118.8
Aggravated assaults	728	435.47	310.1
Burglaries	3,903	2,334.67	746.2
Homicides	42	25.12	5.6
Larceny/thefts	7,311	4,373.24	2,445.8
Motor vehicle thefts	2,689	1,608.48	432.1
Rapes, forcible	193	115.45	33.0
Robberies	1,066	637.65	145.9

Source: http://dayton.areaconnect.com/crime1.htm. Based on 2002 Federal Bureau of Investigation crime reports.

Table 9 presents crime statistics for the years 1998 and 2003 for all "Group A" (more serious) offenses for police sectors 300 and 400 and for the city of Dayton. The table also shows the seven Group A categories that accounted for 85 to 95 percent of all Group A offenses occurring in these areas. (There were no homicides in police sectors 300 or 400 in 1998 or 2003.)

As shown in Table 9, the number of crimes in Dayton decreased by 16 percent over the past five years. An important tool in achieving this major decrease has been the police department's Community Oriented Police Enforcement Program (COPE). This program involves forming partnerships with community stakeholders to promote proactive problem-solving and address the causes of crime.

A key component has been improved police accountability to local communities. A COPE Area Team composed of a sergeant and at least eight patrol officers is given almost total responsibility for policing a specific geographical area on a round-the-clock basis. Except for major crimes, such as homicides and sexual assaults, which remain the responsibility of centralized detective squads, the COPE Area Team is held accountable for what happens in its territory at all times. As a result, citizens become more familiar with the officers in their communities and those officers are accountable to the residents and stakeholders with whom they have frequent interaction. The COPE Area Team is supported by management using the Strategic Tracking, Analysis, Response, Command, Accountability, Policing, and Problem Solving (STARCAPPS) program (Dayton Police Department no date).

During the same period, the number of crimes in police sector 300, which includes The Wright Cycle Company complex, decreased by 36 percent. Across West Third Street in police sector 400, the total numbers of serious crimes were virtually unchanged, although fluctuations were recorded within individual categories.

TABLE 9: CRIME STATISTICS FOR 1998 AND 2003 FOR POLICE SECTORS 300 AND 400 AND FOR THE CITY OF DAYTON

Geographic Area	Total Group A	Assault	Burglary / Breaking and Entering	Property Destruction, Damage, or Vandalism	Drugs or Narcotics	Larceny or Theft	Motor Vehicle Theft	Robbery
Police Sector 300								
Year 1998	113	9	15	13	8	41	14	6
Year 2003	72	3	15	9	5	20	7	3
Change from 1998 to 2003	-36%	-67%	0	-31%	-37%	-51%	-50%	-50%
Police Sector 400								
Year 1998	94	14	16	9	9	20	11	6
Year 2003	95	16	14	14	15	14	4	4
Change from 1998 to 2003	+1%	+14%	-12%	+56%	+67%	-30%	-64%	-33%
Dayton total								
Year 1998	32,047	4,751	4,120	5,099	2,545	8,898	3,284	1,015
Year 2003	26,937	4,150	3,883	3,875	2,205	6,941	2,270	894
Change from 1998 to 2003	-16%	-13%	-6%	-24%	-13%	-22%	-31%	-12%

Source: Dayton Police Department, Barker 2004.

Studies have not been conducted to determine why serious crime numbers in police sector 300 decreased at more than twice the rate of those of the city of Dayton from 1998 to 2003. However, much of the change may be related to the presence of The Wright Cycle Company complex unit of Dayton Aviation Heritage National Historical Park. NPS staff members have heard that some area residents believe NPS employees in uniform have law enforcement authority (at Dayton Aviation Heritage National Historical Park, they do not) and their presence could deter some crime. Dayton police may have increased their visibility in the area to reduce the probability of crimes against park visitors and protect the reputation of the city. However, the most important factor probably has been the improvement of the entire neighborhood, described above.

Huffman Prairie Flying Field and the Wright Memorial are within the boundaries of Wright-Patterson Air Force Base. Both areas are patrolled by U.S. Air Force Security Forces personnel and are surrounded by security fences with gates that are locked during the night. Therefore, little or no serious crime occurs in either of these areas.

LAND USE PLANS, POLICIES, OR CONTROLS

Numerous land use plans, policies, or controls and their applicability to Dayton Aviation Heritage National Historical Park have been presented throughout this document. Many of these were in the section "Connected, Cumulative, and Similar Actions." These plans, policies, and controls are briefly listed below. Please refer to previous sections for more information on these.

- *Dayton Aviation Heritage National Historical Park General Management Plan and Interpretive Plan.*
- Memorandum of agreement between the National Park Service and U.S. Air Force for operation of NPS facilities on U.S. Air Force Property.
- *Cultural Landscape Report, Wright Brothers Hill, and Cultural Landscape Treatment Plan, Wright Brothers Hill Memorial Plaza*
- *Huffman Prairie Flying Field, Wright-Patterson Air Force Base Cultural Landscape Report, Landscape Implementation Plan, and Interpretation Plan*
- *Property Development and Utilization Agreement between the National Park Service and Aviation Trail, Inc.*
- *Wright-Patterson Air Force Base Integrated Natural Resources Management Plan.*
- *Integrated Cultural Resources Management Plan for Wright-Patterson Air Force Base, Dayton, Ohio.*
- *Wright-Patterson Air Force Base General Plan.*
- Memorandum of agreement between Wright-Patterson Air Force Base and the city of Dayton for protection of the municipal wellfield.
- Wright-Patterson Air Force Base wellfield protection program.
- *Development Plan for the Wright Brothers Inner West Enterprise Zone.*
- Miami Conservancy District's Official Plan.
- City of Dayton historic district zoning and architectural controls.
- *Wright-Dunbar Village Urban Renewal Plan.*
- *Wright-Dunbar Village Strategic Development Plan.*
- *Huffman Prairie Cooperative Agreement and Management Plan.*

PARK AND PARTNER OPERATIONS

Operations at The Wright Cycle Company complex involve the National Park Service and Aviation Trail, Inc. At Huffman Prairie Flying Field and the Huffman Prairie Flying Field Interpretive Center, operational responsibilities are shared by the National Park Service and U.S. Air Force. The remainder of the Wright Memorial outside the interpretive center is operated by the U.S. Air Force. The section "Connected, Cumulative, and Similar Actions" describes:

- The property development and utilization agreement for the Hoover Block (Wright-Dunbar Interpretive Center) and Setzer Building (Aviation Trail Visitor Center and Museum) between the National Park Service and Aviation Trail, Inc.
- The memorandum of agreement between the National Park Service and U.S. Air Force on the operation of park facilities on U.S. Air Force property. This agreement is reviewed on a scheduled basis.

THE WRIGHT CYCLE COMPANY COMPLEX

At The Wright Cycle Company complex, the requirement for storage and maintenance space needs to be addressed. There is no appropriate space within the complex for the storage of lawnmowers and other power tools, gasoline and oil for their operation, and other liquids such as paints and thinners. There also is no workspace for the minor repairs that are needed continuously to maintain the historic buildings or for the proper storage of tools to perform repairs. Because of the lack of designated storage and maintenance space, these functions are occurring wherever space can be found.

Currently, two park partners use the space at The Wright Cycle Company complex. Aviation Trail, Inc. activities occur primarily within the Aviation Trail Visitor Center and Museum. The National Park Service uses the rehabilitated house at 30 South Williams Street as park headquarters and has offices on the third floor of the Wright-Dunbar Interpretive Center. It also uses the second floor of The Wright Cycle Company building for office space.

The Aviation Heritage Foundation (the non-profit, 501(c)(3) follow-on to the Dayton Aviation Heritage Commission) also uses space within The Wright Cycle Company complex. The Aviation Heritage Foundation is the management entity for the recently authorized National Aviation Heritage Area, and uses office space at 30 South Williams Street (park headquarters).

HUFFMAN PRAIRIE FLYING FIELD AND THE WRIGHT MEMORIAL

The U.S. Air Force has been an effective manager of the resources at Huffman Prairie Flying Field and the Wright Memorial since long before the park was established. However, its primary mission has been and must continue to be the defense of the nation. Important operations that occur in the vicinity of these sites are described below.

Use of the Wright-Patterson Air Force Base Runway. In 1942, the Marl Road alignment northeast of Huffman Prairie Flying Field was paved with concrete to create part of the base runway system (NPS 2002a). Each day, numerous take-offs and landings of military aircraft (almost 120 C-141 and C-21A aircraft, plus transient aircraft from other military installations) occur on this runway (ICI and SAIC 1995). The southwest end of the runway is less than a

half-mile north of Huffman Prairie Flying Field.

The area beyond the end of the runway has been categorized into three zones under the Air Installation Compatible Use Zone program. The goal is to keep development away from areas that have significant potential for aircraft accidents. Development is not permitted in the clear zone, which is closest to the runway end and is the most hazardous. Accident Potential Zone I (APZ I) beyond the clear zone has a significant potential for aircraft accidents and Accident Potential Zone II (APZ II) beyond APZ I has a measurable potential for accidents. Because they are located to the south of the primary flight path, Huffman Prairie Flying Field and the Wright Memorial are outside all of the accident potential zones.

Hazardous Cargo Mission. Part of the explosives mission of Wright-Patterson Air Force Base is located at the southwest end of the runway near Huffman Prairie Flying Field. Activities associated with this mission include transporting munitions on Marl Road, storing munitions at four hazardous cargo pads near the runway, and loading it onto aircraft.

The cargo pads are used for loading munitions approximately once per week. Typically, pads 1 and 2, which are farthest from Huffman Prairie Flying Field are used first.

The U.S. Air Force closes Huffman Prairie Flying Field to visitors when it believes that munitions handling could pose a safety risk to visitors. Typically, the flying field is closed for this purpose about two days per year (Ferguson and Perdue 2003).

Wright-Patterson Air Force Base has approved explosives safety site plans that address operation of the hazardous cargo pads. Safety zones are established for day-to-day and contingency operations.

- Day-to-day operations are for fewer than 30,000 pounds of net explosive weight of munitions on any hazardous cargo pad. The inner clear zone is 874 feet and the outer clear zone is 1,260 feet.
- Contingency operations apply when the amount of munitions on any hazardous cargo pad equals or exceeds 30,000 pounds net explosive weight. Under these conditions, the inner clear zone is 874 feet and the outer clear zone is 1,911 feet. Under contingency operations, Huffman Prairie Flying Field is closed to the public.

Discussions were held with the Wright-Patterson Air Force Base Safety Office to identify the threshold level at which visitation to Huffman Prairie Flying Field could be sustained. A value of 400 visitors per day was determined, based on the definition of low traffic density in Air Force Manual 91-201. In coordination with the Base Safety Office, larger numbers of visitors have been, and will continue to be, allowed for special events, such as the centennial of flight celebration or large tour groups. However, on a routine basis, safety considerations limit visitation to no more than 400 people per day (Ferguson 2004, 2005).

Training in the Prime Base Engineer Emergency Force (BEEF) Training Area. The U.S. Air Force conducts munitions training in the Prime BEEF Training Area. Visitor activities would be precluded if they occurred within 400 feet of munitions training. Current management practices maintain this separation and the proximity of the training area to the park and the travel routes to it do not affect the ability of park visitors to access Huffman Prairie Flying Field.

Clearance of Visitors from the Area. The current access point to Huffman Prairie Flying Field, Gate 16A, also is used by base personnel to access the facilities in the area.

At times, the U.S. Air Force may want to clear park visitors from the area while allowing other functions to continue. Because the route for visitors currently passes by these facilities and there are no impediments to park visitors stopping at these sites, it is difficult for security personnel to ensure that all visitors have left the area.

Staff Transit between the Flying Field and Interpretive Center. Park staff regularly travel between Huffman Prairie Flying Field and the interpretive center at the Wright Memorial. Each trip requires about 15 minutes and involves travel on U.S. Highway 444 and accessing the flying field via Gate 16a.

Transporting the Replica Wright B Flyer. Current activities to move the replica Wright B Flyer from Building 145 on the Wright-Patterson Air Force Base flight line to its display site at Huffman Prairie Flying Field were included in the description of Alternative A. This trip requires coordination with U.S. Air Force operations personnel to cross the runway. It also requires the presence of NPS staff who have received training from the U.S. Air Force in the flight line operations. Each trip of the aircraft to or from the flying field requires a half-hour or more of NPS and Air Force staff time.

PUBLIC HEALTH AND SAFETY

TRAFFIC SAFETY

Vicinity of The Wright Cycle Company Complex

West Third Street is one of the primary east-west routes in Dayton. Traffic counts on West Third Street in the Williams Street area average 17,700 vehicles per day. In 2003, there were 15 traffic accidents on West Third Street between Broadway and Shannon (the boundaries of the West Third Street Historic District). Ten occurred at intersections, three were non-intersection accidents, and the location was not specified for two accidents. Of the 15 accidents, 12 were property only and three involved injuries. None were fatal. Three of these accidents, including one involving injuries, occurred at the intersection of West Third Street and Williams Street.

South Williams Street is a residential street. Except for the presence of The Wright Cycle Company complex, it would carry only local traffic. Traffic counts in the vicinity of the park average about 430 vehicles per day. In 2003, there was one reportable traffic accident (property damage only) on South Williams Street between Third Street and Fourth Street where a car was sideswiped during passing (Ohio Department of Transportation, Shokouhi 2004).

Beyond these basic statistics, a baseline condition for traffic and traffic safety in the vicinity of The Wright Cycle Company complex cannot be established. The neighborhood is changing in association with its revitalization. Some of the factors affecting traffic and traffic safety include the following:

- The population of the Wright-Dunbar neighborhood is increasing in association with the repair of existing housing to make it habitable and the construction of new homes on formerly vacant lots.
- The new owners of homes in the neighborhood are more affluent. These people have a higher tendency to own and drive cars rather than relying on public transit for some or all of their transportation needs.
- Visitation to the national park is highly variable, with 40,246 recreational visits in 2002 (the year following the terrorist attacks of September 11, 2001) and 100,616 recreational visits in 2003 (the year celebrating the centennial of flight). However, park visitor numbers are expected eventually to increase to 300,000 or 400,000 visitors per year (Burgess & Niple, Limited 2002).
- New businesses are starting to attract nonresidents to the area to work, shop, and dine.
- The transportation study for Dayton Aviation Heritage National Historical Park (Burgess & Niple, Limited 2002) made recommendations for improving safety for pedestrians in the vicinity of the west Dayton park units. Some of the recommendations already have been implemented and others are under consideration.

The first four factors would result in increases in the numbers of automobiles, daily vehicle trips, and accidents in the vicinity of The Wright Cycle Company complex. The latter three factors would serve to improve traffic safety.

Vicinity of the Wright Memorial and Huffman Prairie Flying Field

The Ohio Department of Transportation conducted traffic counts on Ohio Highway 444 on November 5, 2003. The counters were located on Ohio Highway 444 between Ohio Highway 4 and the Greene/Montgomery County line, about a half mile west of Kauffman Avenue. The daily traffic count included 24,834 passenger vehicles and approximately 400 commercial vehicles. The most recent previous count at this site was in 1999 (no date available) when 25,740 passenger vehicles and approximately 440 commercial vehicles were recorded on a daily basis (Ohio Department of Transportation, Gardner 2004)

The difference in these counts (3.6 percent) is within the range of normal day-to-day or seasonal variation, particularly considering the proximity of this site to Wright State University, which has a large commuter student body. The data indicate that traffic has been essentially constant at this location over the four-year period.

Accident statistics for intersections on Ohio Highway 444 near the park were obtained from the Ohio Department of Transportation. Because the intersection at Gate 16A did not exist prior to 2002 and because police officers making reports after the gate opened may not have noted the presence of the gate in the accident report, data also were obtained for all intersection accidents between Ohio Highway 4 and Ohio Highway 844. The data show that in the four years from 2000 through 2003:

- Forty-eight traffic accidents were reported from intersections on Ohio Highway 444 between Ohio Highway 4 and Ohio Highway 844 (not including these bounding intersections). Of these, 16 were injury accidents and 32 involved property damage only. No fatalities occurred during this period.
- Within this group, 32 accidents occurred at the intersection of Kauffman Avenue and Ohio Highway 444. By year, they included nine in 2000, eight in 2001, six in 2002 when reconstruction of the intersection was underway, and nine in 2003.
- There were eight injury accidents at the intersection of Kauffman Avenue and Ohio Highway 444. Half of the injury accidents occurred in the year 2000 before the intersection was rebuilt to improve safety. Two injury accidents occurred in 2002 and one each in 2001 and 2003.
- No traffic accidents were reported from the intersection at Gate 16A (Ohio Department of Transportation, Shokouhi 2004).

If approximately 25,000 vehicles per day pass through the intersection with Kauffman Avenue on Ohio Highway 444, more than nine million vehicles would be logged on this road on an annual basis. This would result in an accident rate at this intersection of one per 280,000 vehicles and an injury accident rate of one per 1.1 million vehicles.

SAFETY RISKS REPRESENTED BY MILITARY OPERATIONS

As described under “Park and Partner Operations,” the military operations at Wright-Patterson Air Force Base near Huffman Prairie Flying Field pose safety risks that are not typically encountered at most national parks. These include:

- Use of the Wright-Patterson Air Force Base runway;
- Munitions transport, storage, and loading in association with the hazardous

cargo mission of Wright-Patterson Air Force Base; and

- Munitions training in the Prime Base Engineer Emergency Force (BEEF) Training Area.

It is important to note that there currently is not an unsafe situation in this area. As described in the section "Park and Partner Operations," the U.S. Air Force has implemented measures to ensure that visitors are not put at risk. The U.S. Air Force also has taken other actions near Huffman Prairie Flying Field, including relocating the mission-critical Combat Arms Training and Maintenance facility, which is used by Air Force security forces and other military personnel for training, to ensure visitor safety.

EMERGENCY RESPONSE

The Wright Cycle Company Complex

Emergency response for The Wright Cycle Company complex is provided by the city of Dayton, as follows:

- The Third District of the Dayton Police Department serves The Wright Cycle Company complex. The response time for an emergency call typically is about five minutes.
- The nearest fire station to The Wright Cycle Company complex is Company 13 at West Third Street and James H. McGee Boulevard. The distance is 0.7 miles and response time is four minutes.
- Miami Valley Hospital, about two miles away, is the closest major medical facility.

All of the buildings at The Wright Cycle Company complex except the house at 26 South Williams Street have modern fire protection systems, including sprinklers.

Wright Memorial and Huffman Prairie Flying Field

Emergency response at the Wright-Patterson Air Force Base sites is provided from the U.S. Air Force fire station near the flight line. To access national park facilities, the emergency response staff must drive out of the base, onto Ohio Highway 444, and into the base via Gate 16A for Huffman Prairie Flying Field or the Wright Memorial gate to reach the interpretive center. The emergency response staff repeatedly performs drills to improve response times and can get to either of these sites in about ten minutes.

The Huffman Prairie Flying Field area also could be accessed via internal base roadways. However, on the days that this park site is open, there are locked gates between the fire station and flying field. Although the fire department has keys to all of the gates and runs drills using these routes, it is quicker to get to the flying field via Ohio Highway 444 than to use the internal routes.

During popular activities, the 46 parking spaces at the Wright Memorial can fill up. At that point, visitors park along the entry road. When this occurs, parked vehicles can obstruct access for emergency vehicles. This occurs most often in the winter when a heavy snowfall has made the hill suitable for sledding and a visitor has sustained serious injuries from a sledding accident (Ferguson and Perdue 2003)

TRANSPORTATION

Most visitors currently travel to and among units of Dayton Aviation Heritage National Historical Park by private vehicle. Average daily traffic counts in the vicinity of The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial were provided in the "Public Health and Safety" section. That section also described factors outside of park influences that were affecting traffic counts, particularly in the vicinity of The Wright Cycle Company complex.

The level of service scale was defined by the American Association of State Highway and Transportation Officials (1990) and is widely used to describe traffic and driving characteristics at various intensities of traffic flow and congestion. These characteristics are described in Table 10. The level of service categories describe urban and suburban driving conditions typical of those that occur in the Dayton area in the vicinity of the Dayton Aviation Heritage National Historical Park units.

The volume-to-capacity ratio indicates how close an intersection is to exceeding its practical capacity. Any ratio over 1.0 suggests that the intersection is failing.

In the transportation study it prepared for the park, Burgess & Niple, Limited (2002) calculated existing levels of service for the intersections at:

- West Third Street and Williams Street and
- Ohio Highway 444 and Kauffman Avenue.

At both intersections in all lanes and directions (for example, eastbound left lane, eastbound through/right lane, westbound left lane, and so on) existing levels of ser-

TABLE 10: LEVEL OF SERVICE CHARACTERISTICS OF URBAN AND SUBURBAN ARTERIALS

Level of Service	Descriptor	Volume/Capacity (percent)	Characteristics
A	Light traffic	0 to 28	Average travel speed is about 90 percent of free flow speed. Stopped delay at signalized intersections is minimal.
B	Moderate traffic	29 to 47	Average travel speeds drop due to intersection delay and inter-vehicle conflicts, but remain at 70 percent of free flow speed. Delay is not unreasonable.
C	Substantial traffic	48 to 66	Stable operations. Longer queues at signals result in average travel speeds of about 50 percent of free flow speeds. Motorists experience appreciable tension.
D	Heavy traffic	67 to 79	Approaching unstable flow. Average travel speeds are down to 40 percent of free flow speed. Delays at intersections may become extensive.
E	Very heavy traffic	80 to 100	Unstable flow. Average travel speeds are 33 percent of free flow speed. Continuous backups occur on approaches to intersections.
F	Extremely heavy traffic	Greater than 100	Forced flow; near gridlock conditions. Average travel speed is between 25 and 33 percent of free flow speed. Vehicular backups and long delays occur, particularly at signalized intersections.

Source: American Association of State Highway and Transportation Officials 1990

vice during both the morning and afternoon peak periods were ranked as A, B, or C. The total intersection volume-to-capacity ratio for Ohio Highway 444 and Kauffman Avenue was 0.65 during the morning peak and 0.61 during the afternoon peak. A total intersection volume-to-capacity ratio was not included for the intersection of West Third Street and Williams Street.

The continuous green in the far right, westbound lane of Ohio Highway 444 at the intersection with Kauffman Avenue was eliminated in November 2004. However, this would not affect the level of service rating of A for westbound through traffic on Ohio Highway 444, which was based on the continuous green lane and the adjoining traffic-light-controlled through lane.

Some of the parking lots that were constructed for the centennial of flight celebrations were temporary and were not long-term solutions to meeting parking needs. Three additional parking lots are being constructed and should be complete by in 2005. These parking lots will meet park requirements for parking for the foreseeable future.

The existing parking at the Wright Memorial (46 vehicle spaces) and Huffman Prairie Flying Field (25 vehicle spaces) were included in the description of Alternative A. Both of these parking lots have spaces that comply with the provisions of the Americans with Disabilities Act for people with impaired mobility.

There is no overflow parking within the Wright Memorial for the Huffman Prairie Flying Field Interpretive Center. Visitors sometimes park along the entrance road, but that is not authorized. When scheduled events require overflow parking, arrangements are made with base security forces to accommodate overflow parking within other areas of the base.

VISITOR USE AND EXPERIENCE

Dayton Aviation Heritage National Historical Park offers opportunities for recreation, education, inspiration, and enjoyment. This unique park allows visitors to tour sites important to the birth and development of powered flight technology. Through interpretive centers, exhibits, and presentations, visitors can learn about the Wright brothers' development of the first powered airplane while touring the actual buildings in which they worked. They also have the opportunity to become familiar with the life and works of the world-acclaimed, African-American author and poet, Paul Laurence Dunbar.

Park facilities were included in the description of Alternative A. The park units are geographically distanced from one another, so transportation among sites is required.

VISITATION

Recreation visits at the park from 1996 through 2002 ranged from about 35,000 to 50,000 per year. In 2003, which included the centennial of flight celebration, visitation increased to about 100,000 people. In 2004, there were slightly more than 50,000 visitors.

All of the park's facilities opened or were substantially expanded, rehabilitated, and/or restored in the two years prior to the July 2003 celebration. New signs were posted on highways throughout the area, and the park increasingly has been listed in guidebooks. As a result, visitation is expected to gradually grow to 300,000 to 400,000 visits per year (Burgess & Niple, Limited 2002).

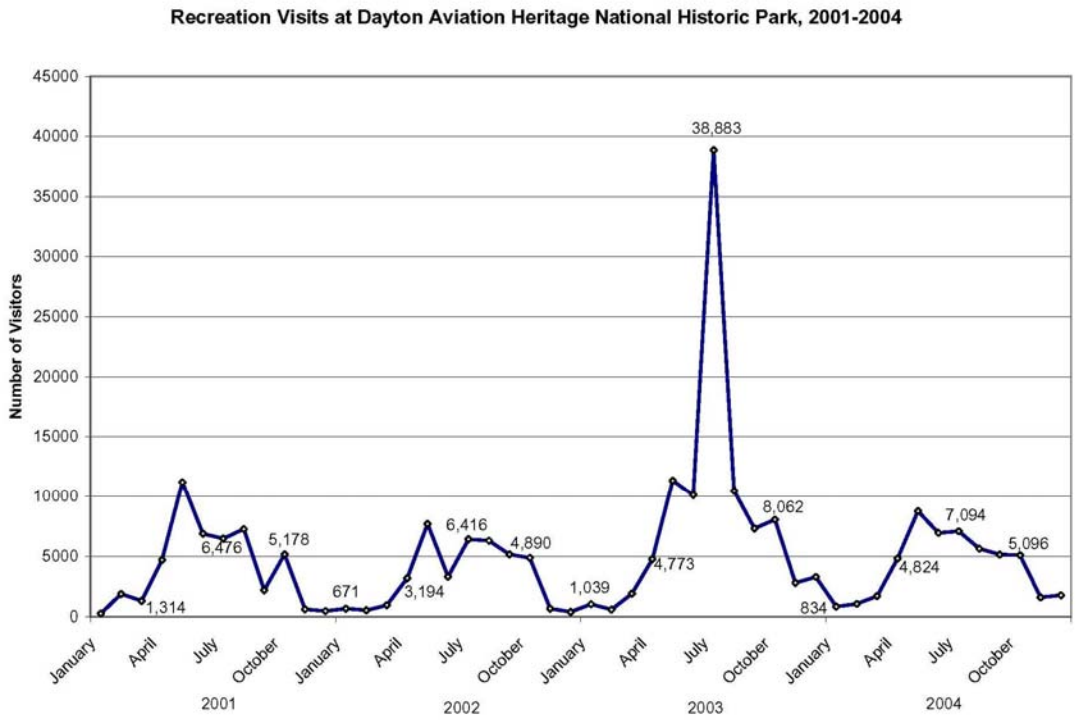
Recreational visits from 2001 through 2004 are shown in the "Recreation Visits at Dayton Aviation Heritage National Historical Park, 2001-2004" graph (Page 155). Visitation in the latter part of 2001 and all of 2002 were affected by the terrorist attacks of September 11, 2001. As shown in the graph, a spike in visitation occurred in 2003 in association with the centennial of flight celebration. Despite these aberrations, the following trends are apparent:

- In 2001 and 2002, the seven-month period from April through October accounted for approximately 90 percent of annual visitation. Each of the remaining five months accounted for only about two percent of annual visitation.
- In 2004, visitation in the winter months increased three- to four-fold compared to 2001 and 2002 and collectively accounted for 15 percent of annual visits.
- Except for the centennial of flight celebration in July 2003, May consistently was the peak visitation month.

It is expected that as the park becomes more well known, the month-to-month variations and seasonal differences will be reduced.

CARRYING CAPACITY

Carrying capacity is a measure used by the National Park Service to ensure that visitors do not adversely impact the integrity of the park's natural and cultural resources, and that overcrowding does not diminish the quality of the visitor experience. Carrying capacity values also are useful in helping managers determine the appropriate types of facilities and the intensity of activities within the park's management zones.



At Dayton Aviation Heritage National Historical Park, the National Park Service set goals for desired resource conditions and visitor experiences park-wide in the general management plan (NPS 1997c). Carrying capacity is a tool that the National Park Service is using to help ensure that park management is accomplished in accordance with the park mission, purpose, and significance, which were provided earlier in this document under the heading "Planning Direction or Guidance."

This general management plan amendment is extending the planning process by developing goals and desired conditions within each management zone. This includes developing carrying capacities for individual structures and facilities. Some of the factors used to develop carrying capacities include the occupancy limits of buildings, visitor access to park facilities, and potential adverse effects on the park's cultural and natural resources.

The Visitor Experience and Resource Protection Process

Since 1992, the National Park Service has been applying the Visitor Experience and Resource Protection framework to address visitor management and carrying capacity issues. This indicator-based management framework addresses the tradeoffs between allowing unrestricted visitor use and providing total protection of natural and cultural resources (Laven *et al.* 2001).

Within this framework, carrying capacity is defined as the type and level of visitor use that can be accommodated while sustaining the desired resource and social conditions that complement the purposes of the park units and their management objectives. Carrying capacity is not an absolute number, but a range within which acceptable limits of change may occur.

The Visitor Experience and Resource Protection framework addresses carrying capacity by prescribing desired conditions for the quality of resources and the visitor experience within each management zone. Based on the desired conditions, the types and levels of visitor use that are appropriate within that zone are identified.

Status of the Visitor Experience and Resource Protection Process at Dayton Aviation Heritage National Historical Park

Nine steps are used to develop and implement the Visitor Experience and Resource Protection process. While all of the steps are necessary, the scope of the steps, the order in which they are undertaken, and the specific methods used to complete the steps may vary among parks. Although the steps may appear linear, Visitor Experience and Resource Protection actually is an iterative process, with feedback and "feed-forward" occurring throughout the steps.

Table 11 presents the status of the Visitor Experience and Resource Protection process at Dayton Aviation Heritage National Historical Park. As shown in the table:

- The first three steps were completed during the development of the park's general management plan (NPS 1997c).
- Steps 5 through 7 currently are underway in the process of preparing this general management plan amendment.

TABLE 11: STATUS OF VISITOR EXPERIENCE AND RESOURCE PROTECTION PLANNING AT DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK

Step	Description	Status
1	Assemble an interdisciplinary project team	Completed as part of the development of the general management plan.
2	Develop a public involvement strategy	Completed as part of the development of the general management plan.
3	Develop statements of park purpose, significance, and primary interpretive themes; identify planning constraints	Completed as part of the development of the general management plan.
4	Analyze park resources and existing visitor use	Ongoing process because so many park components are newly available and visitor use is increasing.
5	Describe a potential range of visitor experiences and resource conditions (potential prescriptive zones)	Included in this general management plan amendment.
6	Allocate the potential zones to specific locations in the park (prescriptive management zoning)	Included in this general management plan amendment.
7	Select indicators and specify standards for each zone; develop a monitoring plan	Included in this general management plan amendment.
8	Monitor resource and social indicators	Begins after an alternative has been established in the record of decision for this general management plan amendment.
9	Take management action	Occurs as needed in response to monitoring

- Step 4 is an ongoing action that has been affected by the numerous recent park improvements and increasing opportunities, such as new versions of guidebooks, for the public to become aware of the existence of this enhanced national park.
- Steps 8 and 9 will be implemented in the future after this general management plan amendment has been implemented.

Indicators and Standards

In the Visitor Experience and Resource Protection process, measures of progress and success are quantified by using indicators and standards.

- An indicator presents a subject to be measured. The indicator must be discernable or quantifiable so that changes, if they are occurring, can be detected by periodic monitoring.
- A standard establishes the threshold for the indicator. For example, a standard may state that there would be no more than 100 number of visitors in a given area at a time.

When the standard is reached or exceeded, management action can be taken if monitoring indicates that conditions are changing to an undesirable level.

Indicators and standards are based on a park's enabling legislation and the management prescriptions applied to zones within parks. As needed, the National Park Service uses adaptive management to adjust indicators and standards. Standards should not be modified based on the inability to meet existing thresholds. However, modifications can be made as research indicates the need for new controls or a more sensitive instrument. This could include research of scientific literature and original, site-specific research of park conditions. The National Park Service may also consult visitors regarding their thoughts on standards.

Any indicators implemented in Dayton Aviation Heritage National Historical Park must be specific, objective, reliable, repeatable, related to visitor use (including the level, type, and location of use), sensitive to changes in conditions, resilient, non-destructive, and significant to fulfilling the purpose of the park.

Standards at this park represent the minimal acceptable condition allowable for a resource, either social or biological. Standards should be quantitative, and bounded by time or space. Ideally, they should also be expressed as a probability, realistic (that is, politically feasible), and impact-oriented, focusing primarily on the impact of the condition, not the management action taken to address it (NPS 1997d).

Monitoring

It is vital to have reliable data on resource conditions and visitor use, so that the park staff can determine if discrepancies are occurring between desired and existing conditions. Monitoring involves collecting resource and visitor data at regular intervals to show if standards are being exceeded.

Detailed monitoring plans ensure that data are properly collected over time and minimize the potential for misinterpretations and other errors. Part of implementing the Visitor Experience and Resource Protection process at Dayton Aviation Heritage National Historical Park will involve preparing technical plans that describe how, where, and when each indicator will be monitored.

QUALITY OF THE VISITOR EXPERIENCE

Currently, there is little evidence throughout Dayton Aviation Heritage National Historical Park of adverse impacts on resources resulting from visitor activities. While some wear of facilities is noted, it is within expected levels and is continuously addressed by routine maintenance.

There have not been indications that visitor numbers are interfering with the quality of experiences. Parking is readily available at all sites and visitors typically can enter park facilities immediately on arrival. It appears that the facilities at Dayton Aviation Heritage National Historical Park are, in general, operating at or below carrying capacity.

NPS adaptive management policies require the park staff to monitor resource and visitor conditions over time. If trends are identified that signal changes from the desired resource and visitor experience conditions, detailed visitor management planning will be initiated in accordance with the park's general management plan (NPS 1997c).

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

For each impact topic, this section describes the methods used to determine environmental effects, presents the results of the analysis, identifies cumulative impact, and summarizes the conclusions. Applicable regulations and policy regarding each impact topic were included in the "Service-Wide Mandates and Policies" section of "Chapter 1: Purpose and Need for Action."

METHODOLOGY

GENERAL EVALUATION METHOD

For each impact topic, the "Affected Environment" section provided a brief description of relevant components of the existing condition. This section uses that information as a basis for determining the effects of implementing each alternative. The impact analyses were based on information provided by park staff, relevant references and technical literature citations, and subject matter experts. The impact analyses involved the following steps:

Define issues of concern, based on internal and external scoping.

Identify the geographic area that could be affected.

Define the resources within that area that could be affected.

Impose the alternative on the resources within the area of potential effect.

Identify the effects caused by the alternative, in comparison to the baseline represented by Alternative A – No Action / Continue Current Management, to determine the relative change in resource conditions. Characterize the effects based on the following factors:

- Whether the effect would be beneficial or adverse.
- The intensity of the effect: negligible, minor, moderate, or major. Impact-topic-specific thresholds for each of these intensities are provided in each impact topic methodology section. Threshold values were developed based on federal and state standards, consultation with regulators from applicable agencies, and discussions with subject matter experts.
- Duration of the effect, either short-term or long-term. Unless an impact-topic-specific definition of these terms is provided, the following will be used:
  - A short-term impact typically lasts only a few days or weeks, but could last up to a year.
  - A long-term impact would last more than a year, or would recur periodically over several years.
- The area affected by the alternative, such as the area within 100 feet of a building footprint, the area within the park boundary, or the Dayton metropolitan area.
- Whether the effect would be a direct result of the action or would occur indirectly because of a change to another resource or impact topic. An example of an indirect impact would be increased mortality of an aquatic species that would occur because an alternative would increase soil erosion, which would reduce water quality.

Determine whether impairment would occur to resources and values considered necessary and appropriate to fulfill the purposes of Dayton Aviation Heritage National Historical Park.

Determine cumulative effects by evaluating the effect in conjunction with the past, current, or foreseeably future actions for Dayton Aviation Heritage National Historical Park and the Dayton area.

IMPAIRMENT ANALYSIS METHOD

Management Policies 2001 (NPS 2000a) requires analysis of potential effects to determine whether or not actions would impair national park resources or values.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, actions that would adversely affect park resources and values.

These laws give the National Park Service the management discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of a park, so long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement (enforceable by the federal courts) that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise.

The impairment prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Impairment may result from NPS activities in managing the park, from visitor activities, or from activities undertaken by concessioners, contractors, and others operating in the park.

An impact on any park resource or value may constitute impairment. However, an impact would be most likely to constitute impairment if it affected a resource or value whose conservation was:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

A determination on impairment is included in the impact analysis section for all impact topics relating to Dayton Aviation Heritage National Historical Park resources and values. It is based on the impact-topic-specific definition of impairment provided in each resource and value impact topic methodology section.

CUMULATIVE EFFECTS ANALYSIS METHOD

The Council on Environmental Quality (1978) regulations for implementing the National Environmental Policy Act require assessment of cumulative effects in the decision-making process for federal actions. Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of

what agency (federal or non-federal) or person undertakes such other actions" (40 *Code of Federal Regulations* 1508.7). Cumulative effects are considered for the alternative to continue current management and both action alternatives.

Cumulative effects were determined by combining the effects of each alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other past, ongoing, or reasonably foreseeable future actions at Dayton Aviation Heritage National Historical Park and in the surrounding region. Other actions that have the potential to have a cumulative effect in conjunction with measures that would implement this general management plan amendment were identified in the "Purpose and Need" section under the heading "Connected, Cumulative, and Similar Actions."

CULTURAL RESOURCE EVALUATION METHOD

The cultural resource evaluation method is based on 36 *Code of Federal Regulations* Part 800, Protection of Historic Properties, and the Council on Environmental Quality (1978) guidelines for implementing the National Environmental Policy Act. In this environmental impact statement, consistent with the Council on Environmental Quality guidelines, potential impacts on cultural resources, including direct, indirect, and cumulative impacts, are described in terms of:

- Type (whether the impacts are beneficial or adverse);
- Context (whether the impacts are site-specific, local, or regional);
- Duration (whether the impacts are short-term, long-term, or permanent); and
- Intensity (whether the degree or severity of impacts would be negligible, minor, moderate, or major).

Because definitions of intensity vary by impact topic, intensity definitions are provided separately for each impact topic analyzed in this environmental impact statement.

These effect analyses are also intended to comply with the requirements of Section 106 of the National Historic Preservation Act. In accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 of the National Historic Preservation Act (36 *Code of Federal Regulations*, Part 800, Protection of Historic Properties), effects on cultural resources were identified and evaluated by:

- Determining the area of potential effects;
- Identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the National Register of Historic Places;
- Applying the criteria of adverse effect to affected, National Register-eligible or -listed cultural resources; and
- Considering ways to avoid, minimize, or mitigate adverse effects.

Under the Advisory Council's regulations, a determination of either *adverse effect* or *no adverse effect* must also be made for affected National Register-listed or -eligible cultural resources, as follows:

- An *adverse effect* occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register of Historic Places. This could include diminishing the integrity (or the extent to which a resource retains its historic appearance) of its location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused

by an alternative that would occur later in time, be farther removed in distance, or be cumulative (36 *Code of Federal Regulations* 800.5, Assessment of Adverse Effects).

- A determination of *no adverse effect* means there could be an effect, but the effect would not diminish the characteristics of the cultural resource that qualify it for inclusion in the National Register of Historic Places.

Council on Environmental Quality (1978) regulations and *Director's Order #12 and Handbook: Conservation Planning, Environmental Impact Analysis, and Decision Making* (NPS 2001) also call for a discussion of mitigation and an analysis of how effective the mitigation would be in reducing the intensity of a potential impact (for example, reducing the intensity of an impact from major to moderate or minor). However, any resultant reduction in intensity of impact that results from mitigation is an estimate of the effectiveness of mitigation under the National Environmental Policy Act only. It does not suggest that the level of effect as defined by Section 106 is similarly reduced. With the exception of some plant materials found in cultural landscapes, cultural resources are nonrenewable resources, and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss in the integrity of the resource that can never be recovered. Therefore, although actions determined to have an adverse effect under Section 106 may be mitigated, the effect remains adverse.

For Alternative C, the preferred alternative, a Section 106 summary is included following the impact analysis sections for cultural resources. The Section 106 summary is an assessment of the effect of the preferred alternative on National Register-eligible or National Register-listed cultural resources only (that is, "historic properties"), based on the criteria of effect and adverse effect found in the Advisory Council's regulations.

Impairment Analyses for Cultural Resources: Potential effects to determine whether or not actions would impair cultural resources or values within Dayton Aviation Heritage National Historical Park were evaluated using the same method described above under the heading "Impairment Analysis Method."

Cumulative Impacts on Cultural Resources: Cumulative impacts on cultural resources were evaluated using the same approach described above under the heading "Cumulative Effects Analysis Method."

ENVIRONMENTAL IMPACTS OF ALTERNATIVE A – NO ACTION / CONTINUE CURRENT MANAGEMENT

ALTERNATIVE A IMPACTS ON ENDANGERED, THREATENED, AND OTHER SPECIAL STATUS SPECIES AND THEIR HABITATS

Methodology

Impacts on endangered, threatened, and other special status species and their habitats were evaluated using the process described in the "General Evaluation Method" section. Separate impact threshold definitions were provided for consideration under the National Environmental Policy Act and Endangered Species Act.

The following impact thresholds were used to conduct National Environmental Policy Act evaluations of the intensity of effects on special concern species and critical habitat. These were applied to all special concern species, regardless of whether listing was at the federal or state level.

- *Negligible:* No listed species of concern and/or their habitats are present; or if species of concern and/or their habitats are present, there would not be any measurable or perceptible consequences to protected individuals, populations, or their habitats.
- *Minor:* The alternative would affect one or more individuals of a listed species or its critical habitat, but the change would not affect the distribution or viability of any populations or the ability of the habitat to continue to support the species of concern. A taking under Section 7 of the Endangered Species Act could occur.
- *Moderate*: A population of a listed species, or its critical habitat, would be noticeably affected. However, the change would not affect the continued existence of the listed species within or outside the park. A taking under Section 7 of the Endangered Species Act could occur.
- *Major:* A population of a listed species, or its critical habitat, would be noticeably affected. The alternative could change the vitality of the population such that it could affect the continued existence of the listed species within or outside the park.

The approach described in the "Impairment Analysis Method" section was used to determine whether impairment would occur to endangered, threatened, and other special status species and their habitats, which are resources considered necessary and appropriate to fulfill the purposes of Dayton Aviation Heritage National Historical Park. The following conditions would define impairment:

- *Impairment:* The alternative would contribute to the deterioration of natural resources to the extent that the park's listed species or critical habitats would no longer function effectively. The change could not be mitigated and would affect these resources to the point that the park's purpose could not be fulfilled and these resources could not be experienced and enjoyed by future generations.

The Endangered Species Act effect categories used to define impacts on listed species are as follows. These were applied only to species listed, proposed for listing, or candidate species at the federal level (Indiana bat, bald eagle, eastern massasauga rattlesnake, and clubshell).

- *No effect / no adverse modification*: The alternative and its interrelated and interdependent actions would not directly or indirectly affect listed species or adversely modify designated critical habitat.
- *May affect / not likely to adversely affect or adversely modify critical habitat:* effects on special-status species or designated critical habitat would be discountable (that is, would be extremely unlikely to occur and could not be meaningfully measured, detected, or evaluated) or completely beneficial.
- *May affect / likely to adversely affect species or adversely modify critical habitat:* an adverse effect on a listed species or designated critical habitat may occur as a direct or indirect result of the alternative, and the effect is either not discountable or not completely beneficial.
- *Is likely to jeopardize a listed species / adversely modify designated critical habitat:* the alternative directly or indirectly could jeopardize the continued existence of a species or adversely modify habitat designated as critical to a species.

For the highly mobile Indiana bat and bald eagle, the geographic area considered for impacts on these species and their habitats included a radius of two miles from Huffman Prairie Flying Field and the Wright Memorial. This area includes potentially suitable habitats on lands owned by the U.S. Air Force, Miami Conservancy District, Wright State University, and others, as well as urbanized areas that are less likely to provide suitable habitat for the bat.

For the eastern massasauga, clubshell, and blazing star stem borer, the geographic area considered for impacts on these species and their habitats included:

- Huffman Prairie Flying Field and the Wright Memorial;
- Lands between the flying field and Wright Memorial; and
- Lands within a half-mile of these areas.

Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Issues identified during scoping and addressed in the impact analysis with regard to endangered, threatened, and other special status species and their habitats included:

- Effects of constructing features such as roads or the bridge across Ohio Highway 444 on special status species or their habitats.
- Operational effects of the alternatives on special status species or their habitats.

Regulations and Policies

Current laws and policies require that the conditions in Table 12 be achieved in Dayton Aviation Heritage National Historical Park for endangered or threatened plants and animals and their habitats.

Management Policies 2001 (NPS 2000a) stresses the need for the National Park Service to consult with other federal and state agencies to achieve the desired conditions for endangered or threatened species. This is particularly important at Dayton Aviation Heritage National Historical Park because of its small size and the U.S. Air Force ownership of most of the lands that provide suitable habitat for endangered, threatened, and other special status species.

TABLE 12: DESIRED FUTURE CONDITIONS FOR ENDANGERED, THREATENED, AND OTHER SPECIAL STATUS SPECIES AND THEIR HABITATS

Desired Condition	Source
Federally and state-listed endangered or threatened species and their habitats are protected and sustained.	Endangered Species Act National Environmental Policy Act Ohio Wildlife Diversity and Endangered Species Program *Management Policies 2001*
The National Park Service works with other land managers to encourage the conservation of the populations and habitats of these species outside Dayton Aviation Heritage National Historical Park.	*Management Policies 2001*
State and locally listed species are inventoried, monitored, and managed in a manner similar to federally listed species. Other native species of special management concern to parks (such as rare, declining, sensitive, or unique species and their habitats) are inventoried and managed to maintain their natural distribution and abundance.	*Management Policies 2001*

Analysis

Under the National Environmental Policy Act, Alternative A would have negligible effects on endangered, threatened, and other special status species and their habitats. This alternative would not involve any changes in facilities or any management changes that would affect species of concern or the habitats that support them.

Under the Endangered Species Act, Alternative A would result in no effect / no adverse modification. The alternative and its interrelated and interdependent actions would not directly or indirectly affect any of the four federal concern species or adversely modify their designated critical habitat.

Cumulative Impacts

The special status species considered in this environmental impact statement are in situations of concern primarily because of human actions that resulted in the loss of habitat. This has occurred not only in the Dayton area but throughout their historical distributions that often ranged through many states and sometimes across international borders. Some of the actions leading to the decline of species have included urbanization, conversion of lands to agricultural purposes, and discharge of pollutants to waterways. These conditions will continue regardless of management actions taken by the National Park Service and will increase the environmental stresses on these and other species.

In some cases, actions such as the restoration of Huffman Prairie are providing small but important local gains for special concern species. Collectively, many such actions can have a substantial benefit regionally or nationally, such as the continuing improvement in the status of the bald eagle. These actions also will continue regardless of the management actions implemented by the National Park Service at Dayton Aviation Heritage National Historical Park.

Alternative A does not include any changes in facilities or management that would affect any special concern species or their habitats, either beneficially or adversely.

Therefore, it would not contribute to the cumulative effect of other actions in the Dayton area or regionally on any special concern species or their habitats.

Conclusions

Alternative A would have negligible effects on special concern species and their habitats. Under the Endangered Species Act, Alternative A would result in no effect / no adverse modification. This alternative would not result in the impairment of any endangered, threatened, and other special status species and their habitats

ALTERNATIVE A IMPACTS ON NATIVE VEGETATION, INCLUDING ECOLOGICALLY CRITICAL AREAS OR UNIQUE NATURAL RESOURCES

Methodology

Impacts on vegetation, including ecologically critical areas or unique natural resources, were evaluated using the process described in the "General Evaluation Method" section. Impact threshold definitions for vegetation are as follows:

> *Negligible:* Individual native plants may occasionally be affected, but measurable or perceptible changes in plant community size, integrity, or continuity would not occur. There would not be any perceptible changes to ecologically critical areas or unique natural resources.
>
> *Minor:* Effects on native plants would be measurable or perceptible, but would be localized within a small area. The viability of the plant community would not be affected and the community, if left alone, would recover. Changes to ecologically critical areas or unique natural resources would be measurable or perceptible, but the functions and values associated with these areas would not be affected.
>
> *Moderate:* A change would occur over a relatively large area in the native plant community that would be readily measurable in terms of abundance, distribution, quantity, or quality. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful. Functions and values associated with ecologically critical areas or unique natural resources would be altered, but mitigation measures to offset adverse effects would likely be successful.
>
> *Major*: Effects on native plant communities would be readily apparent, and would substantially change vegetation community types over a large area. Extensive mitigation would be needed to offset adverse effects, and its success would not be assured. Functions and values associated with ecologically critical areas or unique natural resources would be substantially altered, and the success of mitigation to offset adverse effects would not be assured.

The approach described in the "Impairment Analysis Method" section was used to determine whether impairment would occur to vegetation, ecologically critical areas, and/or unique natural resources, which are resources considered necessary and appropriate to fulfill the purposes of Dayton Aviation Heritage National Historical Park. The following conditions would define impairment:

> *Impairment*: A permanent adverse change in native plant communities, ecologically critical areas, and/or unique natural resources would occur in a substantial portion of their oc-

currence in the park. The change would be highly noticeable, could not be mitigated, and would affect these resources to the point that the park's purpose could not be fulfilled and enjoyment of the native plant communities, ecologically critical areas, and/or unique natural resources by future generations would be precluded.

The geographic area evaluated for impacts on vegetation, ecologically critical areas, and unique natural resources included:

- The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial;
- Lands between the flying field and Wright Memorial; and
- Lands within a half-mile of these areas.

Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Issues identified during scoping and addressed in the impact analysis with regard to vegetation, ecologically critical areas, and unique natural resources included:

- Effects of constructing features such as roads or the bridge across Ohio Highway 444 on vegetation; and
- Operational effects of the alternatives on vegetation.

Regulations and Policies

Current laws and policies require that the conditions in Table 13 be achieved for vegetation, including ecologically critical areas or unique natural resources, at and near Dayton Aviation Heritage National Historical Park. Regulations regarding endangered, threatened, and other special status species and their habitats that were provided earlier also are applicable to vegetation with or in the vicinity of the park.

Analysis

Alternative A would not involve any changes in facilities or any management changes that would affect native vegetation within or near The Wright Cycle Company complex or the Wright Memorial. As a result, Alternative A would have negligible effects on native vegetation, including ecologically critical areas or unique natural resources, at or near these areas.

There is no physical barrier between Huffman Prairie Flying Field and the native vegetation of the adjoining Huffman Prairie. Therefore, concern was expressed that the native vegetation of Huffman Prairie could be seriously stressed by a substantial increase in the number of visitors to the flying field area over the next 20 years with the implementation of Alternative A.

For visitors who are interested in the unusual native vegetation within this tall-grass prairie, the U.S. Air Force has created a self-guided trail. Information along the trail is keyed to a brochure available at the trailhead.

TABLE 13: DESIRED FUTURE CONDITIONS FOR NATIVE VEGETATION, INCLUDING ECOLOGICALLY CRITICAL AREAS OR UNIQUE NATURAL RESOURCES

Desired Condition	Source
Populations of native plant species function in as natural a condition as possible except where special management considerations are warranted.	*Management Policies 2001*
Native species populations that have been severely reduced in or extirpated from Dayton Aviation Heritage National Historical Park are restored where feasible and sustainable.	*Management Policies 2001*
Each park with vegetation capable of burning will prepare a fire management plan and will address the need for adequate funding and staffing to support its fire management program. Until a plan is approved, Dayton Aviation Heritage National Historical Park must immediately suppress all wildland fires.	*Management Policies 2001*
Invasive species are reduced in numbers and area, or are eradicated from natural areas of Dayton Aviation Heritage National Historical Park. Such action is undertaken wherever such species threaten the native vegetation resource or public health, or when control is prudent and feasible.	*Management Policies 2001*
In addition to maintaining all native plant species inside parks, the National Park Service works with other land managers to encourage the conservation of the populations and habitats of these species outside parks.	*Management Policies 2001*
Additional management requirements or protections associated with special designations applied to ecologically critical areas or unique natural resources are recognized and implemented.	*Management Policies 2001*

The native prairie near Huffman Prairie Flying Field, shown here just behind corner marker 1, grows to a height of more than six feet and forms a dense wall of vegetation.

The photograph above shows Huffman Prairie just east of the flying field's corner marker 1 in late summer. As shown in the photo, the mature prairie plants are more than six feet high and form a dense wall of vegetation. If it is crushed down by heavy winter snows, the prairie vegetation forms a thick mat that is difficult to walk through. Half the prairie is burned each year, creating a black, sooty area. As a result, most visitors to the flying field are unlikely to enter the prairie except via the trail and are unlikely to wander off the trail and trample the prairie's native plants.

The U.S. Air Force routinely monitors the condition of the native prairie. If this monitoring determined that adverse effects on the prairie were occurring because of park visitation, management actions would be taken. These could include improving education of visitors regarding the need to protect the native vegetation of the prairie, posting signs prohibiting entry, or even installing fencing. As a result, increased visitation to the flying field under Alternative A would have a negligible effect on the unique natural resource of Huffman Prairie.

Cumulative Impacts

The vegetation encountered by European settlers who moved into southwestern Ohio in the late 1700s consisted of a vast hardwood forest with a small number of prairie islands that ranged in size from several acres to many square miles. Both forests and prairies were quickly converted to farmlands, pastures, and urban areas. Only a few small areas of remnant mature forests or prairies remain in the state (Aullwood Audubon Center and Farm 2004).

The growing awareness of ecological processes in the past 30 years has altered this trend. Managers of public lands and many private landowners increasingly implement measurements to restore high-value native vegetation. For example:

- Throughout Wright-Patterson Air Force Base, the U.S. Air Force has implemented riparian corridor management practices that restrict ground-disturbing activities and allow natural forest regeneration to occur in a zone at least 165 feet (50 meters) wide on each side of the Mad River. These actions have resulted in a rapidly maturing second-growth hardwood forest that is stabilizing the soil, improving water quality, and providing habitat for a wide range of woodland plants and animals, including endangered and threatened species.
- Joint efforts by The Nature Conservancy, U.S. Air Force, and Five Rivers MetroParks are expanding the 25 acres of high-quality prairie at Huffman Prairie throughout the entire 109-acre site and eventually will include other suitable lands in the area (Wright-Patterson Air Force Base 2001c).
- Best management practices for soil conservation are routinely implemented at construction sites to comply with Clean Water Act discharge provisions. These have the added benefit of maintaining soil fertility so that the soils can support vegetation after construction is completed.

Cumulatively, these actions are having a small but important beneficial effect on the extent and quality of the native vegetation community in the Dayton area and the region. Alternative A would not change these trends in native vegetation management.

Conclusions

Alternative A would have negligible effects on native vegetation, including ecologically critical areas or unique natural resources. This alternative would not result in the impairment of native vegetation, including ecologically critical areas or unique natural resources.

ALTERNATIVE A IMPACTS ON SOILS

Methodology

Impacts on soils were evaluated using the process described in the "General Evaluation Method" section. Impact threshold definitions for soils are as follows:

> *Negligible*: Soils would not be affected, or effects would not be measurable. Any effects on soil productivity or fertility would be slight and would occur in a relatively small area.
>
> *Minor*: Effects on soils would be detectable, but would affect a small area. If mitigation was needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.

Moderate: Effects on soils would be readily apparent, and would occur over a relatively large area. Mitigation would probably be necessary to offset adverse effects and would likely be successful.

Major: Effects on soils would be readily apparent, and would substantially change the soil characteristics over a large area. Extensive mitigation would be needed to offset adverse effects, and its success would not be assured.

The approach described in the "Impairment Analysis Method" section was used to determine whether impairment would occur to soils, which are resources considered necessary and appropriate to fulfill the purposes of Dayton Aviation Heritage National Historical Park. The following conditions would define impairment of soils:

Impairment: A permanent adverse change would occur to soils in a large portion of the park, affecting the resource to the point that the park's purpose could not be fulfilled and enjoyment by future generations of the resources supported by soils would be precluded.

The geographic area evaluated for impacts on soils included The Wright Cycle Company complex, Huffman Prairie Flying Field, the Wright Memorial, and the lands between the flying field and Wright Memorial. Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Issues involving soils that were identified during scoping and addressed in the impact analysis included:

- Effects of constructing features such as roads or the bridge across Ohio Highway 444 on soils; and
- Operational effects of the alternatives on soils.

Regulations and Policies

Current laws and policies require the condition in Table 14 be achieved in Dayton Aviation Heritage National Historical Park for soils.

Analysis

Alternative A would have negligible impacts on soils in the vicinity of The Wright Cycle Company complex, Huffman Prairie Flying Field or the Wright Memorial. This alternative would not include any new construction in any of these areas. At the latter two sites, the National Park Service would work with the U.S. Air Force to ensure that an adequate ground cover of vegetation was maintained to protect the soil surface from wind and water erosion.

TABLE 14: DESIRED FUTURE CONDITIONS FOR SOILS

Desired Condition	Source
Soil resources and processes function in as natural a condition as possible, except where special management considerations are allowable under policy.	*Management Policies 2001*
Soils classified by the U.S. Department of Agriculture, Natural Resources Conservation Service as prime or unique farmland soils are retained.	Council on Environmental Quality (1980) memorandum on prime and unique farmlands

Cumulative Impacts

From the time the Miami Valley was settled around 1800 until the late 1960s, substantial soil loss occurred from agricultural and construction sites throughout the region. Rills often developed in farm fields from water erosion, and denuded slopes with gullying were not uncommon. Blowing soils occurred periodically, particularly during the winter when strong winds transported soil particles from unvegetated farm fields.

Better understanding of ecological processes and improved soil management techniques since then have altered this trend regionally. For example:

- Many windbreaks have been planted and maintained in agricultural areas. Native vegetation often is allowed to develop in designed borders around the margins of fields and in rough areas in contrast to the fence-to-fence plowing that often was practiced in the past.
- Farmers use reduced tillage practices to maintain their soil resource. Fall tillage, once common for weed control, has been replaced with spring-only or no/low tillage in concert with herbicides for weed control.
- Soil protection measures implemented at construction sites to comply with Clean Water Act provisions now limit the amounts of soils lost from these areas via wind and water erosion. To avoid legal citations, revegetation with sustainable plant covers is rapidly implemented after disturbances are completed.

Cumulatively, these actions are having a substantial beneficial effect in reducing the loss of soils and maintaining the soil resource in the Dayton area and the region. Alternative A would not change these trends in soil management.

Conclusions

Alternative A would have negligible impacts on soils within or near Dayton Aviation Heritage National Historical Park. This alternative would not result in the impairment of soil resources in the park.

ALTERNATIVE A IMPACTS ON WATER QUALITY AND HYDROLOGY

Methodology

Impacts on water quality and hydrology were evaluated using the process described in the "General Evaluation Method" section. Impact threshold definitions for water quality and hydrology are as follows:

> *Negligible:* Impacts would not be detectable. Water quality parameters would be well within all water quality standards for the designated use. Quality and flows would be within historical ambient and variability conditions.
>
> *Minor:* Measurable changes from historical norms would occur, but quality and flows would be within the range of ambient conditions. All water quality parameters would be within water quality standards for the designated use. State water quality antidegradation policy would not be violated.
>
> *Moderate:* Water quality or flows would be outside the range of ambient conditions. However, while changes to water quality or flows would be readily apparent, water quality parameters would be within

water quality standards for the designated use. Mitigation would probably be necessary to offset adverse effects and would likely be successful. State water quality antidegradation policy would not be violated.

Major: Changes to water quality or flows would be readily apparent, and some water quality parameters for the designated use periodically would be approached, equaled, or exceeded. Flows would be outside the range of ambient conditions, and could include a complete loss of water in some areas or unusual flooding. Extensive mitigation would be needed to offset adverse effects, and its success would not be assured. State water quality antidegradation policy may be violated.

The approach described in the "Impairment Analysis Method" section was used to determine whether impairment would occur to water quality and hydrology, which are resources considered necessary and appropriate to fulfill the purposes of Dayton Aviation Heritage National Historical Park. The following conditions would define impairment:

Impairment: Waters often exceed state-established water quality numeric standards for the designated use, or the state antidegradation policy is violated. The adverse effects on the park's water quality or hydrology would prevent the park's purpose from being fulfilled, or would preclude the resources from being experienced and enjoyed by future generations.

The geographic area evaluated for impacts on water quality and hydrology included:

- The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial;
- Lands between the flying field and Wright Memorial; and
- Lands and water bodies within a half-mile of these areas.

Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Issues identified during scoping and addressed in the impact analysis with regard to water quality and hydrology included:

- Effects on runoff volumes or sediment loading, or effects on the potential for pollution from chemicals.
- Potential to affect flooding or reduce the flood management capacity of the retarding basin behind Huffman Dam.
- Effects on the water quality of the Mad River Buried Valley Aquifer, which is a designated sole source aquifer and source of municipal drinking water for the city of Dayton.

Regulations and Policies

Current laws and policies require that the conditions in Table 15 be achieved for water quality and hydrology. Several waterways are adjacent or close to park units, including the Miami River, Mad River, Wolf Creek, Trout Creek, and Hebble Creek. However, none of these are within areas exclusively managed by the National Park Service. Therefore, the National Park Service will have to work with the U.S. Air Force, Carillon Historical Park, the Miami Conservancy District, the Ohio U.S. Environmental Protection Agency's Division of Surface Water, and others to protect the water quality and hydrology of these waterways.

TABLE 15: DESIRED FUTURE CONDITIONS FOR WATER QUALITY AND HYDROLOGY

Desired Condition	Source
Surface waters and ground water are protected or restored such that water quality as a minimum meets all applicable water quality standards of the State of Ohio.	Clean Water Act Executive Order 11514 *Management Policies 2001* Ohio Revised Code, Chapter 6111: Water Pollution Control, and implementing Ohio Administrative Code chapters.
Municipal water supply wellhead areas are protected from contaminants that may have an adverse effect on the health of water users.	Safe Drinking Water Act
NPS and NPS-permitted programs and facilities are maintained and operated to avoid pollution of surface waters and ground water.	Clean Water Act Executive Order 12088 *Management Policies 2001* Ohio Revised Code, Chapter 6111: Water Pollution Control, and implementing Ohio Administrative Code chapters.
Natural fluvial processes proceed unimpeded. Human disturbance to natural processes that deliver water, sediment, and woody debris to streams are minimized. Streams are managed to protect processes that create habitat features such as floodplains, riparian systems, woody debris accumulations, terraces, gravel bars, riffles, and pools.	*Management Policies 2001*

Analysis

Alternative A would not result in the generation of additional runoff or sediment, or in changes in the management of chemicals, at The Wright Cycle Company complex, Huffman Prairie Flying Field, or the Wright Memorial. This alternative would not involve the construction of new facilities or the addition of impermeable surfaces at any of these sites. The effects of Alternative A on runoff, sediment, and chemical pollution would be negligible.

Because it would not involve any new construction at or near Huffman Prairie Flying Field, Alternative A would not alter the flood management capacity of the retarding basin behind Huffman Dam. The effects of Alternative A on flood management capacity would be negligible.

Alternative A would not change the handling or use at any of the three sites of hazardous materials that have the potential to enter the ground water system. It also would not alter any aspects of the U.S. Air Force's ongoing remediation of Operable Unit 5 near Huffman Prairie Flying Field. As a result, Alternative A would have a negligible effect on the water quality of the Mad River Buried Valley Aquifer.

Cumulative Impacts

Water quality in Dayton and nationally has improved substantially over the past 30 years. Contributing factors include the following:

- A key factor has been implementation of the Clean Water Act. Permitting associated with the National Pollutant Discharge Elimination System has eliminated many point sources of pollution and substantially reduced contaminant concentrations in most remaining point source discharges.
- Remediation of hazardous waste sites under the Comprehensive Environmental Response, Compensation, and Liability Act and other legislation is reducing water pollution from past, improper waste management and disposal actions. For example, near the Huffman Prairie Flying Field unit of Dayton Aviation Heritage National Historical Park, Operable Unit 5 contains a ground water extraction and treatment facility that is removing the low concentrations of contaminants that are present in the ground water in this area. Similar actions at sites throughout Dayton and the region will continue a long-term trend toward water quality improvement.
- The soil protection measures implemented at construction sites that were discussed previously under soils have reduced the introduction of sediment into waterways.

While the National Park Service and its partners will comply with water quality protection measures, these trends would continue regardless of the management actions occurring at Dayton Aviation Heritage National Historical Park.

Hydrology and the protection of the city from flooding have been critical concerns in the Dayton area since the 1913 flood. The Miami Conservancy District effectively operates the flood control system built after the 1913 flood to ensure that similarly destructive floods cannot occur. In this role, the Miami Conservancy District will continue to monitor changes, both singly and in the aggregate, in the Great Miami River watershed that could adversely affect its ability to protect Dayton from flooding. This will include implementing actions as needed to make certain that increases in flow or reductions in flood storage that could reduce the capacity of the flood management system do not occur. No changes in these conditions would occur as a result of management actions at Dayton Aviation Heritage National Historical Park.

Conclusions

Alternative A would have negligible impacts on water quality and hydrology within or near Dayton Aviation Heritage National Historical Park. This alternative would not result in the impairment of water quality or hydrology of Dayton Aviation Heritage National Historical Park.

ALTERNATIVE A IMPACTS ON WETLANDS AND FLOODPLAINS

Throughout this section, in accordance with Executive Order 11988, “floodplain” includes areas that, at a minimum, are subject to a one percent or greater chance of flooding in any given year. This area is commonly known as the 100-year floodplain. As stipulated in *Director’s Order #77-1: Wetland Protection* (NPS 1998c), the wetland classification system of Cowardin *et al*. (1979) is the departmental standard for classifying and inventorying wetlands.

Methodology

Impacts on wetlands and floodplains were evaluated using the process described in the “General Evaluation Method” section. The following impact threshold definitions for wetlands and floodplains are based on Executive Order 11990: Protection of Wetlands and Executive Order 11988: Floodplain Management:

Negligible: There would not be any detectable destruction, loss, or degradation of wetlands, or any detectable enhancement in the natural and beneficial values of wetlands. There would not be any perceptible change in wetland area, plant or animal productivity, species and habitat diversity and stability, or hydrologic utility. No action would be required to comply with the Section 404 dredge and fill permitting provisions of the Clean Water Act. There would not be any detectable change in the occupancy and modification of any floodplain, its beneficial floodplain values, or the risk of flood hazards or losses.

Minor: For wetlands, changes would be measurable or perceptible in terms of area, plant or animal productivity, species and habitat diversity and stability, or hydrologic utility, but the natural and beneficial functions and values associated with these areas would not be affected. Wetland disturbances would total less than 0.1 acre, and notification of the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act would not be required. For floodplains, there would be a detectable change in occupancy or modification, but no change would occur in beneficial floodplain values or the risk of flood hazards or losses.

Moderate: For wetlands, changes would be readily apparent in terms of area, plant or animal productivity, species and habitat diversity and stability, or hydrologic utility. These changes would noticeably affect the natural and beneficial functions and values associated with the wetlands. Section 404 authorization under a nationwide permit (for disturbances between 0.1 acre and 0.3 acre) or an individual permit (for disturbances greater than 0.3 acre) would be required. For floodplains, there would be a readily apparent change in occupancy or modification, including a change in beneficial floodplain values or the risk of flood hazards or losses. Mitigation measures would probably be necessary to offset adverse effects in wetlands or floodplains and would likely be successful.

Major: For wetlands, modifications would be readily apparent for several of the parameters that define a wetland and would result in a change in the character of the wetland. The natural and beneficial functions and values associated with the wetland would be substantially altered. Section 404 authorization under an individual permit would be required. For floodplains, the readily apparent change in occupancy and modification would substantially alter beneficial floodplain values or the risk of flood hazards or losses. Mitigation measures would be necessary to offset adverse effects in wetlands or floodplains, but their success would not be assured.

The approach described in the "Impairment Analysis Method" section was used to determine whether impairment would occur to wetlands and floodplains, which are resources considered necessary and appropriate to fulfill the purposes of Dayton Aviation Heritage National Historical Park. The following conditions would define impairment:

Impairment: A permanent adverse change in wetlands or floodplains would occur in a substantial portion of their occurrence in the park. The

change would be highly noticeable, could not be mitigated, and would affect these resources to the point that the park's purpose could not be fulfilled, and enjoyment of wetland or floodplain resources by future generations would be precluded.

The geographic area evaluated for impacts on wetlands and floodplains included:

- The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial;
- Lands between the flying field and Wright Memorial; and
- Lands within a half-mile of these areas.

Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Issues identified during scoping and addressed in the impact analysis with regard to wetlands and floodplains included:

- Effects of constructing features such as roads or the bridge across Ohio Highway 444 on wetlands and floodplains; and
- Operational effects of the alternatives on wetlands and floodplains.

Regulations and Policies

Current laws and policies require that the conditions in Table 16 be achieved for wetlands and floodplains at Dayton Aviation Heritage National Historical Park.

Analysis

Alternative A would have negligible effects on wetlands and floodplains. This alternative would not involve any changes in facilities or any management changes that would affect wetlands or floodplains within or near The Wright Cycle Company complex, Huffman Prairie Flying Field, or the Wright Memorial.

Cumulative Impacts

The loss of wetland areas and the beneficial functions and values they provide is a continuing problem. Locally, large parts of the

TABLE 16: DESIRED FUTURE CONDITIONS FOR WETLANDS AND FLOODPLAINS

Desired Condition	Source
The natural and beneficial values of wetlands are preserved and enhanced.	Executive Order 11990 Rivers and Harbors Act Clean Water Act Director's Order 77-1: Wetland Protection *Management Policies 2001*
There is no net loss of wetlands, and management actions strive to achieve a longer-term goal of net gain of wetlands through restoration of previously degraded or destroyed wetlands.	Director's Order 77-1: Wetland Protection *Management Policies 2001*
Natural floodplain values are preserved or restored. The occupancy and modifications of floodplains is avoided.	Executive Order 11988 Rivers and Harbors Act Clean Water Act Director's Order 77-2: Floodplain Management *Management Policies 2001*

area now occupied by Areas A and C of Wright-Patterson Air Force Base probably were wetlands. Activities on the base such as filling, drainage of wet areas, construction of levees and other hydrologic barriers, and the dredging and channelization of streams have reduced jurisdictional wetlands on the base to fewer than 25 acres (Wright-Patterson Air Force Base 2001c).

These local conditions reflect regional and national trends. It is estimated that over the past 200 years, the lower 48 states lost 53 percent of their original wetlands. In Ohio, the situation is more critical. Ohio is estimated to have lost 90 percent of its original wetlands and is second only to California (at 91 percent) in percentage loss of original wetland acreage (Dahl 1990).

This trend is continuing, despite Presidential executive orders and agency regulations at the federal, state, and local levels that are intended to halt or even reverse this loss. The negligible effects on wetlands from Alternative A would not have any effects on this trend.

The Miami Conservancy District closely regulates the development in floodplains throughout the Dayton area to ensure that the flood management capacity of its facilities is not diminished. The successful floodplain management that it has exercised throughout the Miami Valley for the past 80 years would not be altered by the implementation of Alternative A.

Conclusions

Alternative A would have negligible effects on wetlands and floodplains. It would not result in the impairment of wetlands or floodplains within Dayton Aviation Heritage National Historical Park.

ALTERNATIVE A IMPACTS ON WILDLIFE AND WILDLIFE HABITATS, INCLUDING AQUATIC LIFE

Methodology

This analysis does not include consideration of special status species, which were discussed previously under the heading "Alternative A Impacts on Endangered, Threatened, and Other Special Status Species and their Habitats." Impacts on wildlife and habitats, including aquatic life, were evaluated using the process described in the "General Evaluation Method" section. Impact threshold definitions for terrestrial and aquatic wildlife and habitats are as follows:

> *Negligible:* Individual animals may occasionally be affected, but measurable or perceptible changes in the size, integrity, or continuity of wildlife and aquatic populations would not occur.
>
> *Minor*: Effects on wildlife, aquatic life, or habitats would be measurable or perceptible, but would be localized within a small area. While the mortality of individual animals might occur, the viability of wildlife or aquatic populations would not be affected and the community, if left alone, would recover.
>
> *Moderate:* A change in wildlife, aquatic life, or habitats would occur over a relatively large area. The change would be readily measurable in terms of abundance, distribution, quantity, or quality of populations. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.
>
> *Major:* Effects on wildlife, aquatic life, or habitats would be readily ap-

> parent, and would substantially change wildlife or aquatic life populations over a large area. Extensive mitigation would be needed to offset adverse effects, and its success would not be assured.

The approach described in the "Impairment Analysis Method" section was used to determine whether impairment would occur to wildlife, aquatic life, or habitats, which are resources considered necessary and appropriate to fulfill the purposes of Dayton Aviation Heritage National Historical Park. The following conditions would define impairment of wildlife, aquatic life, or habitats:

> *Impairment*: A permanent adverse change in wildlife, aquatic life, or habitats would occur in a substantial portion of their occurrence in the park. The change would be highly noticeable, could not be mitigated, and would affect these resources to the point that the park's purpose could not be fulfilled and enjoyment of the wildlife, aquatic life, or habitat resource by future generations would be precluded.

The geographic area evaluated for impacts on wildlife, aquatic life, and habitats included:

- The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial;
- Lands between the flying field and Wright Memorial; and
- Lands and waters within a half-mile of these areas.

Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Issues identified during scoping and addressed in the impact analysis with regard to wildlife, aquatic life, and habitats included:

- Effects of constructing features such as roads or the bridge across Ohio Highway 444 on wildlife and their habitats; and
- Operational effects of the alternatives on wildlife and their habitats.

Regulations and Policies

Current laws and policies require that the conditions in Table 17 for wildlife and wildlife habitats be achieved at Dayton Aviation Heritage National Historical Park. Regulations regarding endangered, threatened, and other special status species and their habitats provided earlier also are applicable to wildlife at the park.

Analysis

Alternative A would have negligible effects on native wildlife and wildlife habitats. This alternative would not involve any changes in facilities or any management changes that would affect wildlife and wildlife habitats within or near The Wright Cycle Company complex, Huffman Prairie Flying Field, or the Wright Memorial.

Cumulative Impacts

Habitat availability is the most important factor affecting terrestrial and aquatic wildlife. Habitat loss for sensitive species has pushed many to critical status that is reflected by their classification at global, federal, or state levels as endangered, threatened, or other special interest categories. Many other species, such as neotropical migrant birds, are declining because of habitat loss but have not yet reached the critical levels that would lead to their listing.

TABLE 17: DESIRED FUTURE RESULTS FOR WILDLIFE AND WILDLIFE HABITATS

Desired Condition	Source
Populations of native animal species function in as natural a condition as possible except where special management considerations are warranted.	*Management Policies 2001*
Native species populations that have been severely reduced in or extirpated from Dayton Aviation Heritage National Historical Park are restored where feasible and sustainable.	*Management Policies 2001*
Invasive species are reduced in numbers and area, or are eliminated from the natural areas of Dayton Aviation Heritage National Historical Park. Such action is undertaken wherever such species threaten the native wildlife resource or public health, or when control is prudent and feasible.	*Management Policies 2001*
In addition to maintaining all native animal species inside parks, the National Park Service works with other land managers to encourage the conservation of the populations and habitats of these species outside parks.	*Management Policies 2001*

In contrast, populations of many wildlife species with generalized habitat requirements have stabilized or even increased in numbers over the past 30 years. The Clean Water Act has been particularly important in providing adequate water quality to support aquatic species. Farming practices described earlier under the evaluation of soils have provided additional areas of habitat for these species.

Because of its negligible impacts on wildlife and wildlife habitats, Alternative A would not contribute to either of these trends.

Conclusions

Alternative A would have negligible impacts on wildlife and wildlife habitats within or near Dayton Aviation Heritage National Historical Park. This alternative would not result in the impairment of wildlife resources or habitats in the park.

ALTERNATIVE A IMPACTS ON ARCHEOLOGICAL RESOURCES

Methodology

Impacts on archeological resources were evaluated using the process described under the heading "Cultural Resource Evaluation Method" at the beginning of this "Environmental Consequences" section. Because cultural resources are subject to provisions of the National Environmental Policy Act and its implementing regulations from the Council on Environmental Quality (1978) as well as the National Historic Preservation Act with implementing regulations for Section 106 at 36 *Code of Federal Regulations* Part 800, the impact criteria for archeological and other cultural resources are presented in a format that is different from the other impact topics in this environmental impact statement.

Under Section 106, in cases where there are no National Register-eligible archeological resources present, or where, if present, these resources would not be affected by undertakings proposed in this plan, a find-

ing of *"no historic properties affected"* is made.

As described in 36 Code of Federal Regulations Part 800.5, application of the criteria of adverse effect to a proposed action results in a finding of adverse effect or no adverse effect.

> An **adverse effect** is an action that would alter, directly or indirectly, any of the characteristics of an archeological resource that qualify the resource for inclusion in the National Register of Historic Places. Such alterations may include physical destruction or damage to all or part of a site or its features, or changes in the property's character and physical setting that contribute to its significance. Because archeological resources are nonrenewable, all adverse effects on archeological resources in Dayton Aviation Heritage National Historical Park would be long-term and would have a high level of concern. An adverse effect would have to be resolved consistent with the methods outlined in 36 *Code of Federal Regulations* Part 800.6.
>
> A finding of **no adverse effect** is made when the direct or indirect effects of the action would not meet the Section 106 criteria for adverse effect.

National Environmental Policy Act intensity thresholds are provided within the no adverse effect category. For impacts of minor intensity, the thresholds address adverse or beneficial changes. The thresholds for moderate and major impacts only consider beneficial changes because unfavorable changes of these magnitudes would result in a Section 106 finding of adverse effect (see above).

> *Negligible impact:* The impact would be at the lowest levels of detection, barely measurable with no perceptible consequences, either adverse or beneficial, to archeological resources.
>
> *Minor adverse impact:* The action would impact one or more archeological sites with modest data potential and no significant ties to a living community's cultural identity. The site disturbance would be confined to a small area with little, if any, loss of important information potential. For purposes of Section 106, the determination of effect would be "no adverse effect."
>
> *Minor beneficial impact:* The action would result in preservation of a site in its natural state. For purposes of Section 106, the determination of effect would be "no adverse effect."
>
> *Moderate beneficial impact*: The alternative would noticeably enhance the protection or preservation of one or more archeological sites that are listed or eligible for listing in the National Register of Historic Places. For purposes of Section 106, the determination of effect would be "no adverse effect."
>
> *Major beneficial impact:* The alternative would substantially enhance the ability to protect and interpret important archeological resources and would foster conditions under which archeological resources and modern society can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations. For purposes of Section 106, the determination of effect would be "no adverse effect."

The approach described in the "Impairment Analysis Method" section was used to determine whether impairment would occur to archeological resources, which are resources considered necessary and appropriate to fulfill the purposes of Dayton Aviation Heritage National Historical Park. The

following conditions would define impairment of archeological resources:

> *Impairment*: An adverse change would occur on an archeological resource whose conservation is necessary to fulfill specific purposes identified in the establishing legislation of Dayton Aviation Heritage National Historical Park, key to the cultural integrity of the park, or identified as a goal in the park's general management plan or other relevant NPS planning documents. The change would be permanent and would preclude the use and enjoyment of the archeological resource by future generations.

The geographic area evaluated for impacts on archeological resources included:

- The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial;
- Lands between the flying field and Wright Memorial; and
- Lands adjacent to the boundaries of these areas.

Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Issues identified during scoping and addressed in the impact analysis with regard to archeological resources included:

- Effects of constructing features such as a maintenance and storage facility, new outbuildings, roads, landscaping (including burial of steam pipes and planting vegetation), dedicated storage facility for the replica Wright B Flyer, new parking areas, or the bridge across Ohio Highway 444 on archeological resources; and
- Operational effects of the alternatives on archeological resources.

Regulations and Policies for All Cultural Resources

Numerous laws, regulations, and guidance documents require the consideration of effects on cultural resources, including those listed in or eligible for listing in the National Register of Historic Places. Some of these include:

- The National Historic Preservation Act, as amended in 1992;
- The National Environmental Policy Act;
- *Director's Order #28: Cultural Resource Management* and *Cultural Resource Management Guideline NPS-28* (NPS 1998b);
- *Director's Order #2: Park Planning* (NPS 1998a) and its implementing guidelines in the *Planners Sourcebook* (NPS 1999);
- *Director's Order #12 and Handbook: Conservation Planning, Environmental Impact Analysis, and Decision Making* (NPS 2001);
- *Management Policies 2001* (NPS 2000a);
- *Department of Defense Instruction 4715.3, Environmental Conservation Program* (U.S. Department of Defense 1996; and
- *Air Force Instruction 32-7065, Cultural Resources Management Program* (U.S. Air Force 2004).

Any actions taken to implement the general management plan amendment also would be subject to Section 106 of the National Historic Preservation Act under the terms of the 1995 programmatic agreement among the National Park Service, Advisory Council on Historic Preservation, and National Conference of State Historic Preservation Officers. Actions that would be

taken on Air Force lands would also be subject to Air Force and Department of Defense regulations and policies for cultural resources. As specific actions were defined for implementation, assessments of effect would be submitted to the Ohio State Historic Preservation Officer for review and comment. (This part of Ohio is not represented by any tribal historic preservation officers.)

More-specific regulations and policies apply to the categories of cultural resources that were considered at Dayton Aviation Heritage National Historical Park. Additional information on the applicable regulations and policies for archeological resources are provided below. Information specific to historic structures and buildings and to cultural landscapes are included in those sections.

Additional Regulations and Policies for Archeological Resources

Current laws and policies require that the conditions in Table 18 be achieved for archeological resources in Dayton Aviation Heritage National Historical Park.

Analysis

The vicinity of The Wright Cycle Company complex does not include any presently identified prehistoric archeological resources, but historic archeological resources may be present in vacant lots or back yards of extant buildings. Continuing current management practices would have a negligible impact on archeological resources in this area.

At the Wright Memorial, the U.S. Air Force would continue its proven, effective protection of the prehistoric burial mounds. There would not be any new construction that could disturb previously unknown archeological resources. Continuing current management practices would have a negligible impact on archeological resources in this area.

At Huffman Prairie Flying Field, the State Historic Preservation Officer has notified the U.S. Air Force that its goals for protecting this National Historic Landmark include avoiding excavation or earthmoving as much as possible (Ohio Historic Preservation Office 1993). Accordingly, the U.S. Air Force minimizes ground disturbing activities in this area (Ferguson and Perdue 2003). Continuing this policy will ensure that previously unknown prehistoric and historical archeological resources at the flying field would not be disturbed. The remains of the only known historic archeological resources, the 1910 hangar and buried remnants of the Simms Station platform, also would remain undisturbed.

The U.S. Air Force manages the Marl Road corridor to protect from any excavation or earthmoving the remaining roadbed of Dayton, Springfield, and Urbana Interurban Rail Line that the Wright brothers used to access the site. This protection would continue under Alternative A. Unlike wood set in the wet soils of the area, the rail line's clay and loam subgrade overlain by gravel should be resistant to deterioration so long as they are not moved. Continuing current management practices both within and near the flying field would have a negligible impact on archeological resources in the Huffman Prairie Flying Field area.

Cumulative Impacts

Over the past two centuries in the Miami Valley and throughout the region, many prehistoric archeological sites have been destroyed by inadvertent disturbance associated with farming, grading, and the construction of urban areas. Many historic archeological sites were lost to projects such as urban renewal and the widening or new construction of highways. These actions resulted in the permanent loss of archeologi-

TABLE 18: DESIRED FUTURE CONDITIONS FOR ARCHEOLOGICAL RESOURCES

Desired Condition	Source
Archeological sites are identified and inventoried, and their significance is determined and documented.	National Historic Preservation Act Executive Order 11593 Archeological and Historic Preservation Act Archeological Resources Protection Act *Director's Order #28: Cultural Resources Management* and *NPS-28, Cultural Resource Management Guideline* Programmatic Memorandum of Agreement among the National Park Service, Advisory Council on Historic Preservation, and National Council of State Historic Preservation Officers (1995) National Environmental Policy Act *Management Policies 2001* *Department of Defense Instruction 4715.3, Environmental Conservation Program* (1996) *Air Force Instruction 32-7065, Cultural Resources Management Program* (2004)
Archeological sites are protected in an undisturbed condition unless it is determined through formal processes that disturbance or natural deterioration is unavoidable, or that it is desirable and appropriate to conduct research.	
In those cases where disturbance or deterioration is unavoidable, the site may be professionally documented and appropriate mitigation measures undertaken.	

cal resources and increased the importance of remaining resources in providing a record of our nation's past.

In Dayton Aviation Heritage National Historical Park, Wright-Patterson Air Force Base, and other federal and state lands, archeological sites would continue to be protected and artifacts would continue to be preserved in accordance with federal and state requirements. However, throughout Ohio and most of the eastern United States, most prehistoric and historic archeological sites are on privately owned land where they have little or no protection. Substantial losses will continue incidentally from urban and residential development, agriculture, and erosion and from deliberate acts such as vandalism and hunting for artifacts. Cumulatively, these actions are having a moderate, adverse impact on irreplaceable archeological resources. The incremental impact of Alternative A on these ongoing regional impacts would be negligible.

Conclusions

Continuing current management practices would have a negligible impact on prehistoric and historic archeological resources in the vicinity of The Wright Cycle Company complex, the Wright Memorial, and Huffman Prairie Flying Field. This alternative would not result in the impairment of archeological resources of Dayton Aviation Heritage National Historical Park.

ALTERNATIVE A IMPACTS ON HISTORIC STRUCTURES AND BUILDINGS

Methodology

Impacts on historic structures and buildings were evaluated using the process described in the "General Evaluation Method" section. Because cultural resources are subject to provisions of the National Environmental Policy Act and its implementing regulations from the Council on Environmental Quality (1978) as well as the National Historic Preservation Act with implementing regulations at 36 *Code of Federal Regulations* Part 800, the impact criteria for historic structures and buildings are presented in a different format from the other impact topics in this environmental impact statement.

Under Section 106, in cases where there are no National Register-eligible historic struc-

tures or buildings present, or where, if present, these resources would not be affected by undertakings proposed in this plan, a finding of *"no historic properties affected"* is made.

As described in 36 CFR 800.5, application of the criteria of adverse effect to a proposed action results in a finding of adverse effect or no adverse effect.

> An **adverse effect** is defined as an action that would alter, directly or indirectly, any of the characteristics of a historic structure or building that would qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Because historic structures and buildings are nonrenewable, all adverse effects on historic structures and buildings would be long-term and would involve a high level of concern. An adverse effect would have to be resolved consistent with the methods outlined in 36 *Code of Federal Regulations* Part 800.6.
>
> Under a **no adverse effect** determination**,** the direct or indirect effects of the action would not meet the Section 106 criteria for adverse effect.

National Environmental Policy Act intensity thresholds are provided within the no adverse effect category. For impacts of minor intensity, the thresholds address adverse or beneficial changes. The thresholds for moderate and major impacts only consider beneficial changes because unfavorable changes of these magnitudes would result in a Section 106 finding of adverse effect (see above).

> *Negligible impact:* The activity would not have the potential to cause effects on historic structures or buildings that would alter any of the characteristics that would qualify the resource for inclusion in or eligibility for the National Register of Historic Places.
>
> *Minor adverse impact:* The action would not alter the character-defining features of a National Register of Historic Places-eligible or -listed structure, site, or district, and would not diminish the overall integrity of a National Register of Historic Places-eligible or -listed structure or resource. For purposes of Section 106, the determination of effect would be "no adverse effect."
>
> *Minor beneficial impact*: The integrity of a structure or building would be maintained and improved in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (NPS 1995b). For purposes of Section 106, the determination of effect would be "no adverse effect."
>
> *Moderate beneficial impact:* Positive actions would be taken to preserve and noticeably enhance character-defining elements of a structure or building in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties (NPS 1995b). For purposes of Section 106, the determination of effect would be "no adverse effect."
>
> *Major beneficial impact:* Character-defining features of a structure or a building that represent important components of the nation's historic heritage would be substantially enhanced, and would foster conditions under which these cultural foundations of the nation and modern society could exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations. The Section 106 determination of effect would be "no adverse effect."

The approach described in the "Impairment Analysis Method" section was used to determine whether impairment would occur to historic structures and buildings, which are resources considered necessary and appropriate to fulfill the purposes of Dayton Aviation Heritage National Historical Park. The following conditions would define impairment of historic structures and buildings:

> *Impairment*: An adverse change would occur on one or more historic structures or buildings whose conservation is necessary to fulfill specific purposes identified in the establishing legislation of Dayton Aviation Heritage National Historical Park, key to the cultural integrity of the park, or identified as a goal in the park's general management plan or other relevant NPS planning documents. The change would be permanent and would preclude the use and enjoyment of the structure or building by future generations.

The geographic area considered for impacts on historic structures and buildings included:

- The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial;
- Lands between the flying field and Wright Memorial; and
- Lands adjacent to the boundaries of these areas.

Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Issues identified during scoping and addressed in the impact analysis with regard to historic structures and buildings included:

- Effects of constructing features such as a maintenance and storage facility, roads, or the bridge across Ohio Highway 444 on historic structures and buildings;
- Effects of rehabilitating historic structures; and
- Operational effects of the alternatives on historic structures and buildings.

Regulations and Policies for Historic Structures / Buildings

Regulations and policies for all cultural resources were described in the preceding section "Alternative A Impacts on Archeological Resources." Current laws and policies relating specifically to historic structures and buildings require that the conditions in Table 19 be achieved in Dayton Aviation Heritage National Historical Park. As noted below, some of these also apply to cultural landscapes.

Analysis

In the vicinity of The Wright Cycle Company complex, Alternative A would not change current management of historic structures and buildings, resulting in a negligible impact on these properties. The National Park Service would continue to stabilize the unused building at 26 South Williams Street to ensure that it would not deteriorate, resulting in a negligible impact on this component of the historic district.

The lack of an appropriate maintenance facility near The Wright Cycle Company complex would continue to present challenges in maintaining the site's historic buildings. However, the National Park Service would continue to find ways to meet these challenges and maintain the buildings in good condition. As a result, the indirect, long-term, adverse impacts on the historic buildings at this site would be negligible.

TABLE 19: DESIRED FUTURE CONDITIONS FOR HISTORIC STRUCTURES AND BUILDINGS

Desired Condition	Source
Projects consider urban quality, historic and cultural resources, and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures.	National Environmental Policy Act, Section 1502.16 *Department of Defense Instruction 4715.3, Environmental Conservation Program* (1996) *Air Force Instruction 32-7065, Cultural Resources Management Program* (2004)
Historic structures and cultural landscapes are inventoried and their significance and integrity are evaluated under National Register criteria. The qualities of historic properties that contribute to their actual listing or their eligibility for listing in the National Register of Historic Places are protected in accordance with the Secretary of the Interior's (1995a) standards, unless it is determined through a formal process that disturbance or natural deterioration is unavoidable.	National Historic Preservation Act Executive Order 11593 Archeological and Historic Preservation Act *The Secretary of the Interior's Standards for the Treatment of Historic Properties: with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (The Secretary of the Interior 1995a) *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (1995b). *Director's Order #28: Cultural Resources Management* and *NPS-28, Cultural Resource Management Guideline* Programmatic Memorandum of Agreement among the National Park Service, Advisory Council on Historic Preservation, and National Council of State Historic Preservation Officers (1995) National Environmental Policy Act *Management Policies 2001* *Department of Defense Instruction 4715.3, Environmental Conservation Program* (1996) *Air Force Instruction 32-7065, Cultural Resources Management Program* (2004)
Fire prevention, protection, and suppression will be primary considerations in the design, construction, rehabilitation, maintenance, and operation of all facilities. Structural fires will be suppressed to prevent the loss of human life and minimize damage to property and resources.	*Management Policies 2001*
New structures harmonize with the area and its cultural resources in proportion, color, and texture. While no attempt is made to duplicate or mimic a historic design, vernacular styles of architecture are appropriate when they provide visual compatibility with the cultural landscape.	*Management Policies 2001* *Department of Defense Instruction 4715.3, Environmental Conservation Program* (1996) *Air Force Instruction 32-7065, Cultural Resources Management Program* (2004)
Historic structures are rehabilitated for contemporary use if they cannot adequately serve an appropriate use in their present condition. Rehabilitation retains the structure's essential features and does not alter its integrity and character or conflict with approved park management objectives.	*Management Policies 2001* *Department of Defense Instruction 4715.3, Environmental Conservation Program* (1996) *Air Force Instruction 32-7065, Cultural Resources Management Program* (2004)

At the Wright Memorial, there are no historic structures or buildings listed in the National Register of Historic Places, although the Wright Memorial is eligible for listing. Alternative A would have a negligible impact on this structure, because the U.S. Air Force would continue its long-term, effective stewardship.

Although Huffman Prairie Flying Field is a National Historic Landmark, there are no historic structures or buildings associated with the flying field. Therefore, Alternative A would have a negligible impact on these types of resources in this area.

Cumulative Impacts

Throughout The Wright Cycle Company complex, there has been a major, beneficial impact on historic structures and buildings associated with the establishment and operation of Dayton Aviation Heritage National Historical Park. This impact has been associated with the:

- Identification and listing in the National Register of Historic Places of sites associated with the Wright brothers' invention of flight;
- Restoration of the Wright Cycle Company building;
- Rehabilitation of the Hoover Block, Setzer Building, and residence at 30 South Williams Street; and
- Development and implementation of interpretive programming regarding the importance of these facilities to the nation's historic heritage.

Minor to moderate beneficial impacts are occurring throughout the West Third Street Historic District as buildings are stabilized and/or rehabilitated. For example, Wright Dunbar, Inc. recently stabilized the Pekin Theater, next to the Aviation Trail Visitor Center and Museum in the Setzer Building in anticipation of its eventual rehabilitation for other purposes.

The presence of the park has been a catalyst for historic preservation activities throughout the Wright-Dunbar neighborhood, not just in the historic district, as described in the "Affected Environment" section on cultural landscapes. Depending on whether buildings and structures are eligible for listing in the National Register of Historic Places because they are significant in American history, architecture, engineering, and culture, or are just historical, the beneficial impact is minor to moderate.

The beneficial impacts on historic structures and buildings in the city of Dayton have not been limited to the Wright-Dunbar vicinity. To date, 16 historic districts have been established within the city. Although they do not have the driving force of a national park nearby, historic or historical buildings in all districts are experiencing minor to moderate beneficial impacts from ongoing stabilization and rehabilitation activities in the broader community.

As noted above, there are no historic structures or buildings at Huffman Prairie Flying Field. At the Wright Memorial, the U.S. Air Force and National Park Service worked together to identify needs for the rehabilitation of the Wright Memorial and to implement most of the prescribed measures prior to the centennial of flight celebrations in 2003. Actions that were delayed because they were too disruptive, including the replacement of the central ring of shade trees, will be scheduled for the near future. These actions are having a moderate, beneficial impact on the Wright Memorial.

Wright-Patterson Air Force Base also has an active program to maintain and rehabilitate its historic structures and buildings (IT Corporation and Hardlines: Design and Delineation 1999). In the mid-1990s, several

hundred buildings on the base were evaluated for eligibility for listing in the National Register of Historic Places. In addition, four historic districts were identified for listing. Although none of the districts or individual buildings are listed in the National Register of Historic Places, they have been determined eligible for listing through a consensus determination of eligibility between the U.S. Air Force and Ohio Historic Preservation Office. To manage these resources appropriately, the U.S. Air Force has:

- Established a base historic preservation officer within the Office of Environmental Management to ensure that inadvertent adverse impacts on the base's historic resources do not occur. This officer works with the state historic preservation officer and Advisory Council on Historic Preservation to ensure the continued integrity of the base's historic structures and buildings while enabling the U.S. Air Force to perform its military mission.
- Prepared a historic resources management plan.
- Instituted several standard operating procedures to ensure that historic preservation responsibilities are maintained during daily activities, including activities that involve excavation or earthmoving.

Despite these successes, many historic structures outside the sphere of influence of the National Park Service and U.S. Air Force are lost each year. Often, this occurs through ignorance, which nearly was the fate of The Wright Cycle Company building. Recognition of its significance had been lost over time, and the derelict building had already been condemned by a city of Dayton building inspector when research by Aviation Trail, Inc. revealed its association with the Wright brothers (Honious 2003). In other cases, private or public funding is not available for stabilization and/or rehabilitation, or a property may be more valuable to its owner if the existing building is removed and the site is redeveloped. As a result, the nation is experiencing a substantial loss of its historical structures and buildings, which increases the importance of the remaining buildings. Alternative A would have a negligible impact on this trend.

Conclusions

Alternative A would have a negligible impact on historic structures and buildings in the vicinity of The Wright Cycle Company complex, the Wright Memorial, and Huffman Prairie Flying Field. This alternative would not result in the impairment of historic structures and buildings at Dayton Aviation Heritage National Historical Park.

ALTERNATIVE A IMPACTS ON CULTURAL LANDSCAPES, INCLUDING URBAN QUALITY AND DESIGN OF THE BUILT ENVIRONMENT

Methodology

Impacts on cultural landscapes were evaluated using the process described in the "General Evaluation Method" section. Because cultural resources are subject to provisions of the National Environmental Policy Act and its implementing regulations from the Council on Environmental Quality (1978) as well as the National Historic Preservation Act with implementing regulations at 36 *Code of Federal Regulations* Part 800, the impact criteria for cultural landscapes are presented in a different format from the other impact topics in this environmental impact statement.

Under Section 106, in cases where there are no National Register-eligible cultural landscapes present, or where, if present, these resources would not be affected by under-

takings proposed in this plan, a finding of "*no historic properties affected*" is made

As described in 36 Code of Federal Regulations 800.5, application of the criteria of adverse effect to a proposed action results in a finding of adverse effect or no adverse effect.

> An **adverse effect** would be an action that would alter, directly or indirectly, any of the characteristics of a cultural landscape that would qualify the landscape for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the landscape's design, setting, materials, workmanship, feeling, or association. Some elements of cultural landscapes, such as structures, are nonrenewable, so adverse effects on these character-defining elements would be long-term. Other elements of cultural landscapes, such as vegetation, may be renewable, and effects on these elements would be more short-lived (for example, until regrowth occurred). An adverse effect would have to be resolved consistent with the methods outlined in 36 *Code of Federal Regulations* Part 800.6.
>
> Under a **no adverse effect** determination, the direct or indirect effects of the action would not meet the Section 106 criteria for adverse effect.

National Environmental Policy Act intensity thresholds are provided within the no adverse effect category. For impacts of minor intensity, the thresholds address adverse or beneficial changes. The thresholds for moderate and major impacts only consider beneficial changes because unfavorable changes of these magnitudes would result in a Section 106 finding of adverse effect (see above).

> *Negligible impact:* The activity would not have the potential to cause impacts on cultural landscapes that would alter any of the characteristics that would qualify the resource for inclusion in or eligibility for the National Register of Historic Places.
>
> *Minor impact*: The action would affect the cultural landscape, but would not alter any of the character-defining features that qualify the resource for inclusion in or eligibility for the National Register of Historic Places. Minor impacts could be beneficial or adverse. For purposes of Section 106, the determination of effect would be "no adverse effect."
>
> *Moderate beneficial impact:* The alternative would noticeably enhance the protection or preservation of a cultural landscape or one or more elements of the cultural landscape that contributed to its being listed or eligible for listing in the National Register of Historic Places. For purposes of Section 106, the determination of effect would be "no adverse effect."
>
> *Major beneficial impact:* The alternative would substantially enhance the ability to protect and interpret a cultural landscape that represents an important component of the nation's historic heritage and would foster conditions under which this cultural foundation of the nation and modern society could exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations. For purposes of Section 106, the determination of effect would be "no adverse effect."

The approach described in the "Impairment Analysis Method" section was used to determine whether impairment would occur to cultural landscapes, which are resources considered necessary and appropriate to

fulfill the purposes of Dayton Aviation Heritage National Historical Park. The following conditions would define impairment of cultural landscapes:

> *Impairment*: An adverse change would occur on one or more cultural landscapes whose conservation is necessary to fulfill specific purposes identified in the establishing legislation of Dayton Aviation Heritage National Historical Park; key to the cultural integrity of the park; or identified as a goal in the park's general management plan or other relevant NPS planning documents. The change would be permanent and would preclude the use and enjoyment of the cultural landscape by future generations.

The geographic area evaluated for impacts on cultural landscapes and the historic scene included:

- The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial;
- Other lands within the West Third Street Historic District; and
- Lands between the flying field and Wright Memorial.

Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Issues identified during scoping and addressed in the impact analysis with regard to cultural landscapes included:

- Effects of constructing features, such as a maintenance and storage facility, outbuildings, roads, parking areas, landscaping (burying steam pipes and planting vegetation), the hangar for the replica Wright B Flyer, new parking areas, or the bridge across Ohio Highway 444, on cultural landscapes; and
- Operational effects of the alternatives on cultural landscapes.

Regulations and Policies for Cultural Landscapes

Cultural landscapes integrate historic structures and buildings with other visual components such as ornamental plantings, fences and gates, fields, and roads. This integrated nature of cultural landscapes and historic structures led to the development of regulations and policies that jointly address both cultural components. These regulations and policies were presented in the "Alternative A Impacts on Historic Structures and Buildings" section.

Analysis

At The Wright Cycle Company complex, Alternative A would not include the restoration, rehabilitation, stabilization, or preservation of any additional buildings or landscape elements by the National Park Service. However, the National Park Service would maintain existing elements so that the integrity of the landscape would not be diminished. Therefore, the direct impact of Alternative A on the cultural landscape would be negligible. Indirect impacts of this alternative are described below under cumulative impacts.

At the Wright Memorial and Huffman Prairie Flying Field, measures are already underway or in the planning stages to support the further rehabilitation of the cultural landscapes. Alternative A would not alter these plans and would have a negligible impact on the cultural landscapes.

Cumulative Impacts

As described in the "Affected Environment" section, rehabilitation of the historic scene around The Wright Cycle Company complex has been occurring since 1982,

when Aviation Trail, Inc. discovered and subsequently purchased the intact buildings that had been used by the Wright brothers in their early business enterprises. Since then, coordinated and complementing actions of multiple park partners have made substantial contributions to reclaiming the historic scene of the Wright-Dunbar neighborhood. Based on the impact thresholds, these actions have resulted in major, beneficial impacts on the historic scene within and around The Wright Cycle Company complex.

Improvements in historic scenes are occurring in designated historic districts throughout Dayton for many reasons, including enhanced funding, innovative programs to assist long-term residents in improving their properties, the appeal of the historic building styles, the attraction of living close to the city center, and the prestige associated with living or working in historic areas. These factors also are contributing to ongoing improvements in the historic scene of the West Third Street Historic District. However, it is expected that the presence of the national park unit will continue to accelerate these improvements, helping to move the entire neighborhood to a vibrant community where a full range of commercial and residential activities occur in the area's rehabilitated historic buildings and their landscapes.

At the Wright Memorial and Huffman Prairie Flying Field, past actions that contribute to cultural landscape cumulative impacts have included the preparation of cultural landscape status reports, prescriptions at both of these sites for rehabilitation with recommendations for treatments, and the implementation of many of those treatments. Future actions will include the implementation of additional measures to enhance the cultural landscape. Cumulatively, these are having a moderate, beneficial impact.

At all three sites, these trends toward restoration of the cultural landscapes and historic scenes are expected to continue. Maintaining current management practices will encourage these beneficial impacts.

Conclusions

Alternative A would have negligible direct impacts on the cultural landscapes or historic scenes in and around The Wright Cycle Company complex, the Wright Memorial, and Huffman Prairie Flying Field. Indirectly, this alternative will continue to contribute to the minor or moderate beneficial impacts on cultural landscapes that are occurring at all three sites. Alternative A would not result in the impairment of cultural landscapes of Dayton Aviation Heritage National Historical Park.

ALTERNATIVE A IMPACTS ON ECONOMICS AND SOCIOECONOMICS, INCLUDING SOCIALLY OR ECONOMICALLY DISADVANTAGED POPULATIONS

Methodology

Impacts on economics and socioeconomics were evaluated using the process described in the "General Evaluation Method" section. Impact threshold definitions were defined as follows:

> *Negligible*: Economic and socioeconomic conditions would not be affected, or effects would not be measurable.
>
> *Minor*: The effects on economic and socioeconomic conditions would be small but measurable, and would affect a small portion of the population. Few effects could be discerned at a distance greater than a half-mile

from the boundaries of any park unit. Adverse effects on minority populations and low-income populations would not be measurably different from those sustained by other population groups.

Moderate: The effects on economic and socioeconomic conditions would be readily apparent and widespread within a half-mile of the boundaries of any park unit, and would be evident throughout Montgomery and Greene Counties; --OR-- adverse effects on minority populations and low-income populations, particularly those within a half-mile of any park unit, would be measurably different from those sustained by other population groups.

Major: The effects on economic and socioeconomic conditions would be readily apparent and would substantially change the economy or social services throughout Montgomery and Greene Counties; --OR--adverse effects on minority populations and low-income populations, particularly those within a half-mile of any park unit, would be readily apparent and would substantially reduce the economy or social services for these populations compared to reductions sustained by other population groups.

Economics and socioeconomics are not among the resources protected by the Organic Act. Therefore, economics and socioeconomics were not evaluated with regard to impairment.

The geographic area evaluated for impacts on economics and socioeconomics consisted of the zip code tabulation areas encompassing the Wright Memorial and Huffman Prairie Flying Field (45433) and The Wright Cycle Company complex (45407), plus all of Montgomery and Greene Counties. Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Economic and socioeconomic issues identified during public scoping and addressed in the impact analysis included:

- Economic effects of construction resulting from the implementation of the alternatives;
- Changes in sales and income;
- Effects on tax revenues and demands for city services;
- Neighborhood effects, such as revitalization; housing availability, quality, and cost; racial and economic diversity; educational attainment; unemployment and percent of citizens in the labor force; and privacy;
- Effects on crime; and
- Environmental justice.

Regulations and Policies

Current laws and policies require that the condition in Table 20 be achieved for economics and socioeconomics, including socially or economically disadvantaged populations, in association with the operation of Dayton Aviation Heritage National Historical Park.

Analysis

All analyses in this section are based on year 2000 dollars so that the results can be compared to values in the year 2000 census.

Effects from Construction. Alternative A would not involve the construction or rehabilitation of any additional facilities by the National Park Service. Therefore, this alternative would have negligible construction-related impacts.

TABLE 20: DESIRED FUTURE CONDITIONS FOR ECONOMICS AND SOCIOECONOMICS, INCLUDING SOCIALLY OR ECONOMICALLY DISADVANTAGED POPULATIONS

Desired Condition	Source
Public participation in planning and decision-making ensures that the National Park Service fully understands and considers the public's interests in Dayton Aviation Heritage National Historical Park, which is part of their national heritage, cultural traditions, and community surroundings. The National Park Service actively seeks out and consults with existing and potential visitors, neighbors, people with traditional cultural ties to park lands, scientists and scholars, concessioners, cooperating associations, gateway communities, other partners, and government agencies.	*Management Policies 2001*
The National Park Service works cooperatively with others to improve the condition of Dayton Aviation Heritage National Historical Park; enhance public service; and integrate the park into sustainable ecological, cultural, and socioeconomic systems.	*Management Policies 2001*
In the spirit of partnership, the National Park Service seeks opportunities for cooperative management agreements with state or local agencies that will allow for more effective and efficient management of Dayton Aviation Heritage National Historical Park.	*Management Policies 2001* National Parks Omnibus Management Act of 1998, Section 802.
Environmental justice is achieved by identifying and addressing disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low-income populations.	Executive Order 12898 *Environmental Justice Guidance under the National Environmental Policy Act* (Council on Environmental Quality 1997) *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses (*USEPA 1998*)*

Changes in Sales and Income. Alternative A would not increase employment by the National Park Service. As a result, it would have negligible direct effects on sales and income.

Even with the Alternative A approach of continuing current management, visitation to the park is forecast to increase from the pre-2003 levels of fewer than 50,000 visitors. Attendance estimates range from 96,000 to 577,000 visitors per year (Stock 2000), with a "reasonable" estimate in the range of 300,000 to 400,000 visitors per year (Burgess & Niple, Limited 2002).

Stock (2000) estimated that about 22 percent of park visitors would be local and 78 percent would be non-local. This is close to actual NPS Public Use Statistics Office values for 2001 of 27 percent local and 73 percent non-local and will be the basis for the economic impact analyses presented here.

Stock did not include any expenditures from local visitors. He assumed that most local visitor dollars would have been spent somewhere else in the local area and would not represent a "new" contribution to the economy.

Of the non-local visitors, Stock estimated that 85 percent do not stay overnight and spend about $25 per day (year 2000 dollars). The remaining 15 percent of non-local visitors would stay overnight and would spend between $70 and $102 per day.

Based on these values, Stock calculated that annual non-local visitation of 75,000 visitors per year (or about 100,000 total visitors per year) would result in tourist spending of $2.3 million to $2.7 million per year and would increase area incomes by $1.5 million to $1.7 million annually. He identified this as a linear relationship where each increase in non-local visitation of 25,000 people (total visitation of 33,333 people) would result in increased tourist spending of $780,000 to $900,000 and would increase area incomes by $500,000 to $577,000.

Under Alternative A, visitation of 300,000 total visitors by the year 2025 would result in annual tourist expenditures each year of $7.0 million to $8.1 million and produce area incomes of $4.5 million to $5.2 million. At 400,000 total visitors per year, annual tourist expenditures would range from $9.4 million to $10.8 million and produce area incomes of $6.0 million to $6.9 million.

In comparison, business establishments in Greene and Montgomery Counties in the year 2000 contributed more than $3 billion in wages to the economy. Wright-Patterson Air Force Base contributed more than $1 billion in annual income. At a visitation level of 400,000 people per year, income associated with Dayton Aviation Heritage National Historical Park would represent less than 0.2 percent of the income of the Dayton area. Based on the impact threshold definitions presented above, the indirect, long-term effect of Alternative A on sales and income would be beneficial, but the intensity would be minor.

The several million dollars in sales and income that would result from operation of the park would be very important to merchants within a half-mile of The Wright Cycle Company complex along the West Third Street corridor. It would be considerably less important in the area near Huffman Prairie Flying Field and the Wright Memorial, which is not economically depressed and where visitors would probably patronize numerous establishments within a radius of two miles or more. At all sites, sales and income changes probably could not be discerned at a distance greater than a half mile and would not be evident in statistical analyses at the county level.

Effects on Tax Revenues and Demands for City Services. A basic principle of community planning is that commercial areas produce more revenues than they require and that residential areas require more revenues than they produce. Because of the decline in the West Third Street commercial corridor more than 40 years ago, this area has had a substantially greater demand for funds for services than it produces in tax revenues.

Currently, the sales tax in the city of Dayton is 7.5 percent. Recipients include the state of Ohio (6.0 percent), Montgomery County (1.0 percent), and the transit system (0.5 percent). Based on annual sales associated with the park of about $10 million per year (for 400,000 visitors per year), these agencies would receive a combined annual increase in tax revenues of about $750,000. While this long-term, indirect impact would be beneficial, it would not be readily evident in the annual operating budgets of these entities and would be of minor intensity. Specifically:

- Revenues collected by the state of Ohio would increase by $600,000 annually, representing approximately 0.003 percent of the state's total gen-

eral revenues of $18.5 billion in 2004 (Ohio Office of Budget and Management 2003).

- Revenues collected by Montgomery County would increase by $100,000 annually, representing about 0.01 percent of the county's annual operating budget in 2003 of $723 million (Montgomery County 2003).
- The Greater Dayton Regional Transit Authority would receive an additional $50,000 annually, representing about 0.06 percent of its $80 million capital and operating budget for 2004 (Miami Valley Regional Planning Commission 2003).

The income tax rate for the city of Dayton is 2.25 percent. Based on visitation of 400,000 people per year and the changes in income described by Stock (2000), the income tax increase attributable to Dayton Aviation Heritage National Historical Park would be about $145,000 annually. This would represent 0.08 percent of the city's general fund of $180 million (Dayton Office of the City Manager 2003).

As the values of properties in the area increased, Dayton also would receive additional funds from its property tax, which is levied on residential property at a rate of 61.55 mills and on commercial and industrial property at a rate of 77.12 mills per $1,000 of taxable value. While it is not possible to calculate increased revenues from increases in property values, they would be modest compared to the city's annual budget.

Collectively, the long-term, indirect impact of income and property taxes for the city of Dayton would be beneficial. However, the impact would not be readily evident in the city's annual operating budget and would be of minor intensity.

As described in the "Affected Environment" section, redevelopment of housing and commerce in the area is resulting in the people and businesses moving into the neighborhood. The infrastructure already is in place, but the city continues to provide upgrades for components that can be more than 100 years old. This increased demand on city services is of minor intensity, adverse, long-term, and indirectly related to the park.

Effects would be lower in Greene County, which contains Huffman Prairie Flying Field and the Wright Memorial. Governments in this area would collect slightly higher sales and income tax revenues, but the effects would occur in several municipalities. Greene County would not experience indirect increases in property values and associated property taxes like those occurring near The Wright Cycle Company complex. Similarly, there would not be changes in demands for city services. The overall effect in Greene County would be long-term, indirect, beneficial, and of negligible intensity.

Neighborhood Effects. The revitalization of the Wright-Dunbar area that is occurring because of the presence of the national park was described in the "Affected Environment" section. Among the more immediate results of this revitalization has been increased housing availability and quality while allowing low-income, long-time residents to improve and continue living in their homes. Increases in economic and racial diversity already are becoming evident (Johnson 2004). It is expected that other indicators of stability and prosperity, such as median income, percent of citizens in the labor force, and unemployment rate, will show substantial improvements by the next census in 2010.

Although it has not yet been demonstrated by census data, the level of educational at-

tainment probably is increasing as better-educated, more affluent citizens move into the neighborhood. A more subtle beneficial effect may also be occurring as a result of the park's education and interpretation activities. One of the key messages conveyed to local children is that Dunbar and the Wright brothers also were children of that very neighborhood who, through resolve, hard work, and talent, overcame economic (and in the case of Dunbar, racial) adversity to achieve world-wide fame. That message may help inspire current youngsters to believe in themselves and their dreams, stay in school, and achieve success in their lives.

All of these conditions would continue to improve under Alternative A. Because of the neighborhood focus of this issue, the county-level evaluation included in the impact threshold definitions are not applicable. The long-term, beneficial, indirect effects in the neighborhood would be of major intensity, being readily apparent and substantially changing the economy and social condition in the neighborhood

There also would be adverse effects in the neighborhood related to a loss of privacy. Some of this has already occurred, and the feelings of some area residents that they were being intruded on by strangers would increase as visitation to the park increased several-fold over the next 20 years. Loss of privacy would be most evident at homes within sight of The Wright Cycle Company complex, the former site of the Wright home at 7 Hawthorne Street about a block away, and the Paul Laurence Dunbar State Memorial. Residents of homes close to parking areas or along the walking route between The Wright Cycle Company complex and the Dunbar house also may be substantially aware of park visitors near their homes. The overall intensity of this adverse, indirect, long-term effect of the park would be minor. However, based on an individual's or family's location and sensitivity, the adverse effect could range from negligible to moderate.

Neighborhood effects like those described above would not occur near Huffman Prairie Flying Field and the Wright Memorial. Both of these sites are within Wright-Patterson Air Force Base and nearby residential areas would have negligible effects on residential areas.

Effects on Crime. The decrease in crime that has been recorded over the past five years in police sector 300, which includes The Wright Cycle Company complex, would be expected to continue with Alternative A. A primary contributor to the decline would be the influx of new residents to the neighborhood. Many of these people would have a low tolerance to criminal activity and a high expectation of protection of their safety and property. They may be more active in developing and supporting programs such as Neighborhood Watch. There also would be increased deterrence just from the increased street presence of visitors and residents.

A continuing decrease in crime in police sector 300 would be an indirect, long-term, beneficial effect of the park presence. Within the neighborhood, the effect would be major. On a city-wide basis, the beneficial effect would be negligible, because crime in police sector 300 represents less than 0.4 percent of all crime in the city.

Effects on crime like those occurring near The Wright Cycle Company complex would not occur at Huffman Prairie Flying Field or the Wright Memorial. Both of these sites are within Wright-Patterson Air Force Base, well removed from residential and business areas. They currently sustain almost no criminal activity and are not expected to experience increases.

Environmental Justice. Executive Order 12898, "Federal Actions to Address Envi-

ronmental Justice in Minority Populations and Low-Income Populations," provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

The Office of Environmental Justice for the U.S. Environmental Protection Agency (1998) defines environmental justice as:

> *The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.*

It notes that the goal of this "fair treatment" is not to shift risks among populations, but to identify potential disproportionately high and adverse effects and identify alternatives that may mitigate these impacts.

The definition of minority populations was considered by the Interagency Working Group on Environmental Justice, which included 17 major federal departments and agencies. The resulting definition, presented in the Council on Environmental Quality's (1997) *Environmental Justice Guidance under the National Environmental Policy Act* states that:

> *Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.*

The definition of low-income populations is less precise. The Council on Environmental Quality guidelines simply state that "Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census Current Population Reports, Series P-60 on Income and Poverty."

Within the Dayton Aviation Heritage National Historical Park vicinity:

- The U.S. Census Bureau zip code tabulation area that includes The Wright Cycle Company complex clearly falls within the guidelines for an area that should be considered for environmental justice. More than 90 percent of the population of this zip code tabulation area is of African-American heritage and the family poverty level is more than three times that of the county or state.
- The zip code tabulation area that includes Huffman Prairie Flying Field and the Wright Memorial is more affluent than, and has a racial diversity similar to the Greene-Montgomery County area and the state of Ohio. Therefore, this area was not evaluated for environmental justice.

The evaluation of environmental justice included the effects on all of the natural resource components described previously in this document plus the effects on public health and safety. Table 5 on page 90 provides a summary of the effects of Alternative A on all of these impact topics.

As described in the evaluation of each of these impact topics, there would be negligi-

ble effects on the environmental components of the area around The Wright Cycle Company complex. Public health and safety related to traffic would have negligible adverse effects, while a minor beneficial effect on health and safety would result from the park-related reduction in crime in the neighborhood. Based on these findings, Alternative A would not have disproportionately high and adverse human health or environmental effects in the vicinity of The Wright Cycle Company complex.

Cumulative Impacts

As a whole, the economy of the Dayton area has been stagnant, largely as a result of the loss of manufacturing jobs. The sluggish economy has been reflected in social conditions, such as declining populations, high crime rates, and increases in vacant housing.

Although they are primarily indirect, the increasing economic contributions of Dayton Aviation Heritage National Historical Park are contrary to the current trend. Moreover, the presence of a national park within the Dayton area provides prestige that goes beyond traditional economic measures and may serve to attract visitors to the city who may not otherwise have come. The cumulative impact of Alternative A, while small compared to the economy of the Dayton area, would be beneficial and would become more so as the park became better known and attracted more visitors.

Conclusions

Alternative A would have negligible short-term, construction-related impacts.

At the county level, long-term, beneficial, primarily indirect effects of negligible or minor intensity would occur in sales and income, tax revenues, and crime. At the neighborhood level, there would be long-term, beneficial, primarily indirect effects of major intensity that would involved reduced crime and unemployment and increased housing availability, median income, percent of citizens in the labor force, and levels of educational attainment.

Long-term, adverse, primarily indirect effects of minor intensity would occur because of increased demands for services (a city-wide concern) and reduced privacy in the neighborhood.

The environmental justice evaluation found that Alternative A would not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

ALTERNATIVE A IMPACTS ON LAND USE PLANS, POLICIES, OR CONTROLS

Methodology

Impacts on land use plans, policies, or controls were evaluated using the process described in the “General Evaluation Method” section. Impact threshold definitions for land use plans, policies, or controls were defined as follows:

> *Negligible*: There would not be any effects on land use plans, policies, or controls, or effects would not be measurable.
>
> *Minor*: Potential conflicts would be identified between the alternative and land use plans, policies, or controls of others. However, those conflicts would be small and could readily be reconciled to the satisfaction of all parties.

Moderate: Substantive potential conflicts would be identified between the alternative and land use plans, policies, or controls of others. Although the conflict could probably be reconciled by negotiation, this could require an amendment to or variance from the plan, policy, or control.

Major: A readily apparent conflict would be identified between the alternative and land use plans, policies, or controls of others. The conflict probably could not be reconciled by negotiation and would result in a situation substantially out of compliance with land use plans, policies, or controls of a local, regional, state, or other federal organization or agency.

Land use plans, policies, or controls are not among the resources protected by the Organic Act. Therefore, land use plans, policies, or controls were not evaluated with regard to impairment.

The geographic area evaluated for impacts on land use plans, policies, or controls consisted of Montgomery and Greene Counties. Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Issues related to land use plans, policies, or controls identified during scoping and addressed in the impact analysis included compliance of the alternatives and their components with the published and foreseeable future plans, policies, or controls of local, regional, state, or other federal organizations or agencies.

Regulations and Policies

Current laws and policies require that the conditions in Table 21 be achieved for land use plans, policies, or controls in association with the operation of Dayton Aviation Heritage National Historical Park.

TABLE 21: DESIRED FUTURE CONDITIONS FOR LAND USE PLANS, POLICIES, OR CONTROLS

Desired Condition	Source
Possible conflicts between alternatives and land use plans, policies, or controls for the area concerned (including those of local and state governments and Indian tribes) and the extent to which the park will reconcile the conflict are identified in environmental documents.	National Environmental Policy Act
Park planning is conducted as part of cooperative regional planning and ecosystem planning.	*Management Policies 2001*
NPS participation in cooperative regional planning provides better coordination and focusing of the independent and autonomous efforts of multiple parties. Planning efforts acknowledge the rights and interests of other landowners.	*Management Policies 2001*
Plans identify and consider potential effects both within and outside park boundaries and identify ways to enhance beneficial effects and mitigate adverse effects.	*Management Policies 2001*

Analysis

In the vicinity of The Wright Cycle Company complex, Alternative A would have negligible effects on land use plans, policies, or controls. The NPS facilities and management practices would not only comply with land use plans, policies, and

controls, but also would serve as an important contributor to the ability of the area to meet the plans, policies, and goals of the municipality and numerous organizations for the revitalization of the West Third Street corridor and surrounding residential neighborhoods.

Alternative A also would be consistent with U.S. Air Force land use plans, policies, and controls at park facilities on Wright-Patterson Air Force Base and would have negligible effects on their implementation. Since the park was established in 1992, the National Park Service and U.S. Air Force have worked closely to develop and execute plans that would enable visitors to experience and understand the historic resources while maintaining base security and protecting natural resources. Alternative A would continue to implement these plans without conflicts.

Cumulative Impacts

As evidenced in the desired conditions established in its regulations and policies, the National Park Service emphasizes a cooperative spirit in both regional and ecosystem planning. It recognizes that in its planning activities, it must identify and consider potential effects both within and outside park boundaries and identify ways to enhance beneficial effects and mitigate adverse effects.

The National Park Service is one of five legislated partners in Dayton Aviation Heritage National Historical Park. It manages only one of the four park sites, The Wright Cycle Company complex, and even there it has a property development and utilization agreement with Aviation Trail, Inc. Therefore, even more than in most national parks, the National Park Service recognizes at this park that its planning efforts must acknowledge and support the rights and interests of others.

The National Park Service has been successful in forging effective working relationships with many partners to implement common goals within the existing framework of land use plans, policies, or controls. Alternative A would continue these successful relationships to create a beneficial cumulative effect on surrounding neighborhoods; the Montgomery and Greene County vicinity; and the larger communities that support aviation, literature, and history.

Conclusions

Alternative A would comply with all land use plans, policies, and controls in the area and would have a negligible effect on their implementation.

ALTERNATIVE A IMPACTS ON PARK AND PARTNER OPERATIONS

Methodology

Impacts on park and partner operations were evaluated using the process described in the "General Evaluation Method" section. Impact threshold definitions for park operations were defined as follows:

> *Negligible*: Park and partner operations would not be affected, or the effect would not be noticeable or measurable outside normal variability.
>
> *Minor*: The effect on park or partner operations would be measurable, and might be noticed by park and partner staff, but probably would not be noted by visitors.
>
> *Moderate:* The effects on park or partner operations would be readily apparent, and would result in a substantial change in park or partner operations in a manner that would be

noticeable to staff and visitors. Mitigation would probably be necessary to offset adverse effects and would likely be successful.

Major: The effects on park or partner operations would be readily apparent, and would result in a substantial change in park or partner operations. Staff and visitors would recognize the change as being markedly different from existing operations. Extensive mitigation would be needed to offset adverse effects, and its success would not be assured.

Park and partner operations are not among the resources protected by the Organic Act. Therefore, park and partner operations were not evaluated with regard to impairment.

Effects on park and partner operations were considered within:

- The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial;
- The area within a half-mile of the boundaries of these sites; and
- The area within Wright-Patterson Air Force Base from Huffman Prairie Flying Field east to Gate 16A.

Cumulative effects that would occur within and outside the park were determined based on the "Cumulative Effects Analysis Method" section.

Park and partner operations issues identified in scoping and addressed in the impact analysis included:

- The need for dedicated storage and maintenance space at or near The Wright Cycle Company complex;
- Space for partner activities at The Wright Cycle Company complex;
- Effects of expanding park operations into the Pekin Theater;
- The ability of Wright-Patterson Air Force Base to continue activities in the area, such as runway operations and training missions;
- Security at Wright-Patterson Air Force Base, including security during construction and the ability to clear visitors from the vicinity of Huffman Prairie Flying Field;
- Movement of NPS staff between Huffman Prairie Flying Field and the interpretive center;
- Effects of transporting the replica Wright B Flyer, including NPS time commitments and interference with runway operations; and
- Maintenance requirements for any new facilities associated with the alternatives.

Regulations and Policies

Current policies require that the conditions in Table 22 for park and partner operations be achieved in Dayton Aviation Heritage National Historical Park.

Analysis

The Wright Cycle Company Complex

Alternative A would have negligible effects on park and partner operations at The Wright Cycle Company complex. Most operational aspects would continue to be similar to those described in the "Affected Environment" section. At The Wright Cycle Company complex:

- The absence of dedicated space for storage and maintenance would continue to present challenges associated with implementing the "program of preventive and rehabilitative maintenance and preservation . . . to protect

TABLE 22: DESIRED FUTURE CONDITIONS FOR PARK AND PARTNER OPERATIONS

Desired Condition	Source
Necessary and appropriate visitor and administrative facilities consistent with the conservation of park resources and values are provided. Facilities are harmonious with park resources, compatible with natural processes, aesthetically pleasing, functional, energy- and water-efficient, cost effective, universally designed, and as welcoming as possible to all segments of the population.	*Management Policies 2001*
Facilities are developed within a park only after a determination has been made that the facility is necessary and appropriate, and that it would not be practicable for the facility to be developed, or the service provided, outside the park. Facilities within park boundaries are placed only in locations identified in an approved general management plan, or in implementation planning documents, as being suitable and appropriate.	*Management Policies 2001*
Management facilities are located outside park boundaries whenever the park can be adequately supported from such a location. When such facilities must be in the park, they will not adversely affect park resources or values, or detract from the visitor experience.	*Management Policies 2001*
A program of preventive and rehabilitative maintenance and preservation is conducted to protect the physical integrity of facilities and preserve or maintain facilities in their optimum sustainable condition.	*Management Policies 2001*
Park facilities and operations demonstrate environmental leadership by incorporating sustainable practices to the maximum extent practicable in planning, design, siting, construction, and maintenance, including preventive and rehabilitative maintenance programs.	*Management Policies 2001*

- the physical integrity of facilities and preserve or maintain facilities in their optimum sustainable condition" that was identified in the desired conditions, above.
- Partners could be allocated temporary working space for short-term activities but there would not be opportunities to provide dedicated space to these groups.

Effects at Wright-Patterson Air Force Base

At Huffman Prairie Flying Field, Alternative A would have negligible effects on:

- The ability of Wright-Patterson Air Force Base to continue runway operations and training missions in the area;
- Security at the base;
- Movement of NPS staff between Huffman Prairie Flying Field and the interpretive center; and
- Maintenance requirements for facilities.

As described in the "Affected Environment" section, transporting the replica Wright B Flyer from Building 145 on the Wright-Patterson Air Force Base flight line to its display site at Huffman Prairie Flying Field frequently disrupts the activities of NPS staff and requires coordination with U.S. Air Force operations personnel. This long-term, direct, adverse effect of moderate intensity would continue with the implementation of Alternative A.

Cumulative Impacts

Park and partner operations probably is the most flexible of all impact topics. Circumstances change constantly as large and small alterations occur in the physical and social environment. The National Park Ser-

vice and its partners are continuously adjusting their operations to accommodate these changes while meeting their missions.

The impacts associated with Alternative A would require operational modifications. These would have to be handled in concert with other changes, such as the recent opening of park buildings or, on a large scale, the need for increased security following the terrorist attacks of September 11, 2001. Cumulatively, all of these would help shape the body of practices and procedures that are implemented by the National Park Service, U.S. Air Force, and other partners to meet day-to-day needs within the larger context of accomplishing mission goals.

Conclusions

Effects of Alternative A on park and partner operations at The Wright Cycle Company complex and the Wright Memorial would be negligible. At Huffman Prairie Flying Field, transporting the replica Wright B Flyer to and from its display site would continue to have a long-term, direct, adverse effect of moderate intensity on NPS and U.S. Air Force operations.

ALTERNATIVE A IMPACTS ON PUBLIC HEALTH AND SAFETY

Methodology

Impacts on public health and safety were evaluated using the process described in the "General Evaluation Method" section. Impact threshold definitions for public health and safety are as follows:

> *Negligible*: Public health and safety would not be affected, or the effects would not be measurable. Indicators such as numbers of police calls and traffic accident rates would be within historical norms.
>
> *Minor*: Effects would be detectable and would include variations from historical norms for such factors as numbers of police calls or minor traffic accident rates. However, they would not produce an appreciable change in public health or safety. Adverse effects on minority populations and low-income populations would not be measurably different from those sustained by other population groups.
>
> *Moderate*: Changes to public health and safety would be locally apparent, and could be expressed in such factors as numbers of police calls or serious traffic accidents compared to historical norms; --OR-- adverse effects on minority populations and low-income populations, particularly those within a half-mile of any park unit, would be detectable and would include variations from historical norms for such factors as numbers of police calls or minor traffic accident rates.
>
> *Major*: Changes to public health and safety would be sufficiently large to be apparent in city- or county-wide statistics for such factors as serious traffic accidents rates that result in injury; --OR-- adverse effects on minority populations and low-income populations, particularly those within a half-mile of any park unit, would be readily apparent and would noticeably increase rates of accident or injury compared to increases sustained by other population groups.

Public health and safety are not among the resources protected by the Organic Act. Therefore, public health and safety were not evaluated with regard to impairment.

The geographic areas evaluated for impacts on public health and safety included:

- The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial;
- The area within a half-mile of the boundaries of these sites;
- The area within Wright-Patterson Air Force Base from Huffman Prairie Flying Field east to Gate 16A; and
- Ohio Highway 444 from Ohio Highway 4 to Ohio Highway 844, not including those intersections.

Cumulative effects that would occur within and outside the park were determined based on the "Cumulative Effects Analysis Method" section.

Public health and safety issues identified during scoping and addressed in the impact analysis included:

- Traffic safety;
- Safety risks represented by military operations; and
- Emergency response.

Regulations and Policies

Current policies require that the conditions in Table 23 be achieved in Dayton Aviation Heritage National Historical Park for public health and safety.

TABLE 23: DESIRED FUTURE CONDITIONS FOR PUBLIC HEALTH AND SAFETY ISSUES

Desired Condition	Source
A safe and healthful environment is provided for visitors and employees. Management actions strive to protect human life and provide for injury-free visits.	*Management Policies 2001*
Park visitors assume a substantial degree of risk and responsibility for their own safety when visiting areas that are managed and maintained as natural, cultural, or recreational environments.	*Management Policies 2001*
Effective law enforcement occurs as part of a cooperative community effort. The park encourages and assists park neighbors in the development of cooperative crime prevention and detection programs.	*Management Policies 2001*
Environmental justice is achieved by identifying and addressing disproportionately high and adverse human health or environmental effects of programs, policies, and activities on minority populations and low-income populations.	Executive Order 12898 *Environmental Justice Guidance under the National Environmental Policy Act* (Council on Environmental Quality 1997)

Analysis

Traffic Safety near The Wright Cycle Company Complex

Visitation estimates for the units of Dayton Aviation Heritage National Historical Park were included in the transportation study prepared by Burgess & Niple, Limited (2002). They identified the peak season for park visitation (and therefore, park-related traffic safety effects) as extending from July through October. They estimated that 60 percent of annual visitation would occur in this period, with visitation evenly distributed among the four months (about 15 percent of total annual visitation per month).

Actual visitor data for the years 2001 and 2002 are now available from the NPS' Public Use Statistics Office (at http://www2.nature.nps.gov/npstats). They show that in both years, about 90 percent of visitation occurred in the seven months of April through October with the highest visitation in May.

Peak-season monthly visitation was highly variable, ranging from 23 percent of the annual total in May 2001 to just five percent of the annual total in September 2001 after the terrorist attacks in New York and Washington, D.C. The average visitation by month for the seven-month period was about 13 percent of total annual visitation.

The calculations in this section are based on the peak-season and off-peak-season visitation estimates of Burgess & Niple, Limited (2002). On a monthly basis, they may overestimate or underestimate peak-season impacts by up to 20 percent. Off-peak-season effects presented here may slightly be overstated, because the five off-peak months appear to account for only about a third of the visitation that the Burgess & Niple report attributed to an off-peak month (two percent versus six percent of total annual visitation).

Burgess & Niple, Limited (2002) estimated that at a visitation level of 400,000 people (approximately ten times that occurring in the park from 1996 through 2002), this site would have 1,835 visitors per day during a peak-season weekend. It was calculated that:

- If all visitors arrived by automobile at an average occupancy rate during peak-seasons weekends of 3.0 visitors per vehicle (Burgess & Niple, Limited 2002), Alternative A would produce 611 round trips or 1,222 one-way trips in the vicinity of The Wright Cycle Company complex each peak-season weekend day.
- If trips were evenly spaced throughout the 8.5 hours during which the interpretive center and cycle shop were open daily, there would be about 144 one-way trips per hour or one vehicle every 25 seconds on peak-season weekend days.

Using the same calculations and an average occupancy rate of 2.2 visitors per vehicle for off-peak weekdays (Burgess & Niple, Limited 2002), Alternative A would result in:

- Approximately 915 one-way trips or one vehicle every 33 seconds during peak-season weekdays;
- Approximately 670 one-way trips or one vehicle every 46 seconds during off-peak-season weekend days; and
- Approximately 330 one-way trips or one vehicle every 92 seconds during off-peak-season weekdays.

On West Third Street, one additional vehicle every 25 to 92 seconds would not change the accident rate compared to historical norms and would have a negligible effect on safety. However, if all of these vehicles used South Williams Street, they would represent a substantial increase in traffic.

Most visitors' vehicles would be moving fairly slowly, both because the drivers would not be familiar with the neighborhood and because people typically drive cautiously in heavy use areas associated with national parks. As a result, only a small increase in traffic accidents would be expected and most of those accidents would involve property damage only. No fatal accidents and no measurable increase in injury accidents would be anticipated. Based on the threshold criteria, the additional traf-

fic of park visitors on South Williams Street and other neighborhood streets would represent a long-term, indirect, adverse impact of minor intensity on public health and safety.

Traffic Safety near the Wright Memorial and Huffman Prairie Flying Field

The Burgess & Niple, Limited (2002) transportation study estimated peak-season weekend visitation of 800 people at Huffman Prairie Flying Field and 920 people at the interpretive center. Presumably, most of these would be the same people, but this analysis assumed that only half of the visitors to the flying field also traveled to the interpretive center. This would produce a total of 1,320 individuals visiting one or both of these facilities on a peak-season weekend day. Using the calculation described above for The Wright Cycle Company complex, this level of visitation would result in 880 one-way automobile trips in the area or one additional vehicle on Ohio Highway 444 every 35 seconds. Lower numbers of park-related trips would occur on weekdays and off-peak-season weekends.

A total of 880 park-related trips per day on a peak-season weekend would increase daily traffic on Ohio Highway 444 by about 3.5 percent. This is within the range of variability that was exhibited between the 1999 and 2003 traffic counts for this highway that were collected by the Ohio Department of Transportation. As a result, it would not be possible to detect changes in traffic accidents that resulted from park traffic from changes in accident numbers that were occurring because of normal variability in daily traffic loading on this highway.

Using another approach, this analysis assumed that at a projected visitation level of 400,000 visitors per year, half of all visitors would visit the flying field or the interpretive center and would pass through the intersection of Ohio Highway 444 and Kauffman Avenue. At an average occupancy rate of 2.5 visitors per vehicle, this would create an additional 80,000 round trips or 160,000 one-way trips through the intersection. Based on the existing accident rate at this intersection of one per 280,000 vehicles, the traffic in this area associated with Alternative A would result in one additional accident every 1.75 years and one additional injury accident every seven years. This long-term, indirect, adverse effect of the park on public safety would not be detectable within historical norms and would have a negligible intensity.

Safety Risks Represented by Military Operations

Military operations at Wright-Patterson Air Force Base would have a negligible effect on public health and safety for the following reasons:

- Alternative A would not place visitors within any of the accident potential zones that extend beyond the Wright-Patterson Air Force Base runway.
- To ensure visitor safety, visitation at Huffman Prairie Flying Field would be maintained at levels (currently set at 400 visitors per day) that are compatible with the ongoing hazardous cargo mission.
- The U.S. Air Force would continue to close the flying field whenever thresholds that could represent unsafe conditions for visitors were exceeded.

Emergency Response

Alternative A would not change emergency response at The Wright Cycle Company complex, Huffman Prairie Flying Field, or the Wright Memorial and would have a

negligible effect on this aspect of public health and safety.

Cumulative Impacts

Several factors relating to traffic that have the potential to affect public health and safety are occurring in the vicinity of The Wright Cycle Company complex and were listed in the "Affected Environment" section. As described in that section, about half the factors would tend to increase the number of traffic accidents in the vicinity of The Wright Cycle Company complex and half would improve traffic safety. The decreasing crime in the neighborhood that was described in the section on economics and socioeconomics is expected to have a beneficial effect on public health and safety.

Changes in public health and safety also are occurring in a much larger setting. For example:

- Traffic engineers are continuously monitoring accident data for intersections on Ohio Highway 444 and other roadways throughout the city and region and are continuously implementing measures to improve safety.
- Terrorists or mentally disturbed individuals (such as the sniper targeting Columbus highways in late 2003) represent an unpredictable threat to public safety.
- Safety measures implemented locally and regionally following the terrorist attacks of September 11, 2001 are improving public safety in general by providing better planning, equipment and training for responding to emergency situations.

Against this cumulative backdrop, the management actions of Alternative A would have a negligible effect on public health and safety.

Conclusions

Additional traffic from park visitors on South Williams Street and other neighborhood streets would represent a long-term, indirect, adverse impact of minor intensity on public health and safety. All other effects of Alternative A on public health and safety would be negligible.

ALTERNATIVE A IMPACTS ON TRANSPORTATION

Methodology

Impacts on local and regional transportation were evaluated using the process described in the "General Evaluation Method" section. Safety aspects of transportation, such as traffic accidents, were considered previously under "Alternative A Impacts on Health and Safety."

This analysis assumed that the current widespread use of private automobiles by park visitors and citizens throughout the Dayton metropolitan area by would continue. It did not anticipate major shifts toward mass transit or other transportation modes within its 20-year planning timeframe.

Changes in numbers of vehicle trips were calculated in association with the traffic safety analysis in the preceding section, "Alternative A Impacts on Public Health and Safety." The results of those calculations are incorporated in this section.

Impacts from each alternative also were determined based on changes in the level of service at the intersections that would be affected by park traffic. Table 10 in the "Affected Environment" section provides the level of service scale devised by the American Association of State Highway and Transportation Officials (1990).

Traffic impacts of the action alternatives are defined as the differences between future traffic conditions predicted with existing management (represented by Alternative A) and future traffic conditions if an action alternative was implemented. Impact threshold definitions for transportation are as follows:

Negligible: Local and regional transportation would not be affected, or the effects would not be measurable. Changes in peak-hour volume-to-capacity on roadways within a mile of park units would be within the range of variability of historical norms.

Minor: Effects on roadways within a mile of park units would be detectable and would include measurable variations from historical norms for such factors as average weekday traffic volumes or peak-hour traffic volumes. However, the changes would be insufficient to cause a one-step change in level of service during peak-hour traffic at any roadway segment or intersection. At distances of more than a mile from park units, changes in traffic would be within the range of variability of historical norms and would not be measurable.

Moderate: In the vicinity of a park unit, effects on such factors as average weekday traffic volumes or peak-hour traffic volumes would be readily apparent. The changes would be large enough to cause a one-step change in level of service (for example, level D to level C) during peak-hour traffic in at least one intersection lane. At distances of more than a mile, changes would be detectable and would include distinct variations from historical norms.

Major: Within a mile of a park unit, effects on such factors as average weekday traffic volumes or peak-hour traffic volumes would be readily apparent. The changes would cause at least a two-step change in level of service (for example, level C to level E) during peak-hour traffic in at least one intersection lane. At distances of more than a mile, changes would be large enough to cause a one-step change in level of service during peak-hour traffic.

Transportation is not among the resource protected by the Organic Act. Therefore, transportation was not evaluated with regard to impairment.

The geographic area evaluated for impacts on transportation extended two miles from the boundary of any park unit. It also included areas within two miles of Gate 16A and the gate to the Wright Memorial.

Cumulative effects that would occur within and outside the park were determined based on the "Cumulative Effects Analysis Method" section.

Transportation issues identified during scoping and addressed in the impact analysis included:

- Effects on travel in the vicinity of The Wright Cycle Company complex;
- Availability of parking at each of these areas; and
- Effects on travel in the vicinity of Huffman Prairie Flying Field and the Wright Memorial.

Regulations and Policies

Current policies require that the conditions in Table 24 be achieved in Dayton Aviation Heritage National Historical Park for transportation.

TABLE 24: DESIRED FUTURE CONDITIONS FOR TRANSPORTATION

Desired Condition	Source
Transportation solutions at Dayton Aviation Heritage National Historical Park preserve natural and cultural resources while providing a high-quality visitor experience.	*Management Policies 2001*
Alternative transportation systems are emphasized and encouraged. Preferred modes of transportation are those that contribute to maximum visitor enjoyment of, and minimum adverse impacts on, park resources and values.	*Management Policies 2001*
Alternative transportations systems enhance the visitor experience by offering new or improved interpretive or recreational opportunities, simplifying travel within the park, or making it easier or safer to see park features.	*Management Policies 2001*
The park works cooperatively with other federal agencies, state and local governments, regional planning bodies, concessioners, citizen groups, and others to design and promote alternative transportation systems for park access and circulation. Park transportation systems are linked to public transportation through cooperation with public transportation agencies and the community.	*Management Policies 2001*
When parking areas are deemed necessary, they are limited to the smallest size appropriate. Plantings and other design elements reduce negative visual and environmental impacts. Permanent parking areas are sized for the use anticipated on the average weekend day during the peak season of use.	*Management Policies 2001*

Analysis

Number of Trips

The Wright Cycle Company Complex. The change in the number of vehicle trips was calculated in the preceding section "Alternative A Impacts on Public Health and Safety." As described in that section, during peak-season weekends, approximately 1,220 additional one-way trips per day would occur in association with park visitation of 400,000 people per year. If these trips were distributed throughout the day, traffic increases would range from one vehicle every 25 seconds during peak-season weekends to one vehicle every 92 seconds during off-peak-season weekdays.

On West Third Street, which has an average daily traffic load of 17,700 vehicles per day, peak-season weekend traffic from the park would represent seven percent of the average daily traffic load. This change may be detectable by some observers and might be measurable compared to historic norms. A lesser effect may be discerned during peak-season weekdays, but the off-season changes would be within the range of normal variability for daily traffic loads. Because most visits would be on weekends or on weekdays between the rush hours, changes during workday peak-hour traffic periods probably could not be discerned or meaningfully measured.

During throughout the peak season, park-related traffic on West Third Street would have a long-term, indirect, adverse effect of minor intensity. The intensity would be negligible during the off-season and during rush hours.

If all additional park-related trips used South Williams Street, they would represent a substantial increase in traffic. As described in the "Affected Environment" section for public health and safety, the average traffic load on this residential street is

about 430 vehicles per day. During the peak season, routing all park traffic onto South Williams Street would produce almost a four-fold increase in daily traffic volumes. While this change would be readily apparent, it would represent an average traffic volume of fewer than four cars per minute throughout an eight-hour day. At most times, this would not result in a change in the level of service on South Williams Street. The long-term, indirect, adverse effect on South Williams Street during the peak seasons would be of minor to moderate intensity. During the off-peak season, the impact would be minor.

Vicinity of Huffman Prairie Flying Field and the Wright Memorial. As described in the analysis of public health and safety, a total of 880 park-related trips per day on a peak-season weekend would increase daily traffic on Ohio Highway 444 by about 3.5 percent. This is within the range of variability that was exhibited between the 1999 and 2003 traffic counts for this highway that were collected by the Ohio Department of Transportation. As a result, it would not be possible to meaningfully measure changes in traffic loadings. The long-term, indirect, adverse effects on traffic in this area would be of negligible intensity.

Level of Service

The Wright Cycle Company Complex. Burgess & Niple, Limited (2002) evaluated the effects of three potential future configurations of the intersection at West Third Street and Williams Street using current traffic volumes and projected future volumes for park visitation at 400,000 visitors per year. For all three configurations, there were no change in levels of service in any lanes. The long-term effect of Alternative A on level of service for this intersection would be negligible.

Table 25 shows projected levels of service for the intersection of Ohio Highway 444 and Kauffman Avenue for park visitation at 400,000 visitors per year. This approximate level of visitation is anticipated by the end of the planning period in 2025. As shown in the table, the westbound left lane would have very heavy traffic. In all other lanes, motorists would perceive the traffic as light or moderate.

TABLE 25: PROJECTED LEVELS OF SERVICE AT THE OHIO HIGHWAY 444 AND KAUFFMAN AVENUE INTERSECTION FOR ALTERNATIVES A AND C FOR 400,000 VISITORS PER YEAR

	Alternative A		Alternative C	
Intersection and Lane	**A.M. Peak**	**P.M. Peak**	**A.M. Peak**	**P.M. Peak**
Eastbound left (would only exist in the Alternative C configuration of this intersection)	--	--	B	E
Eastbound through and through/right	B	B	C	D
Eastbound right	A	A	A	A
Westbound left	E	B	F	E
Westbound through and through/right	A	A	B	D
Northbound left	B	B	D	D
Northbound left/through	--	--	D	D
Northbound right	A	A	A	A
Southbound left/through/right	--	--	B	D
Total intersection volume/capacity	0.87	0.70	1.19	0.86

Source: Burgess & Niple, Limited 2002.

Availability of Parking

The Wright Cycle Company Complex. The transportation study by Burgess & Niple, Limited (2002) projected that about 150 parking spaces would be needed in the vicinity of The Wright Cycle Company complex to accommodate park visitation of 400,000 people per year. As described in the "Affected Environment" section, several parking lots, including some that were intended to be temporary, were constructed for the centennial of flight celebrations. Three permanent lots that will replace some of the temporary lots currently are under construction and will be complete by late 2004. As park visitation and other uses of the area by businesses and their patrons increase, the city of Dayton and Wright Dunbar, Inc. are committed to providing adequate parking. As a result, the long-term effect on parking in the area would be negligible.

Wright Memorial. For The Wright Cycle Company complex, Burgess & Niple, Limited (2002) calculated that the 1,835 peak-season weekend day visitors would require about 150 parking spaces. This would involve an average vehicle occupancy of 3.0 people staying 2.0 or 2.5 hours, and each parking space being used sequentially by three or four vehicles per day. Applying these values to 920 peak-season weekend visitors to the Wright Memorial, approximately 75 parking spaces would be needed to accommodate visitation. The existing 46 spaces would often fill up. The effects of the insufficient parking are discussed later under visitor use and experience.

Huffman Prairie Flying Field. Using the same calculation described for the Wright Memorial, an estimated 65 parking spaces would be needed to accommodate the 800 peak-season weekend visitors to the flying field. The existing parking lot has 25 spaces. The effects of the insufficient parking are discussed later under visitor use and experience.

Cumulative Impacts

In the vicinity of The Wright Cycle Company complex, several factors that could affect area traffic were identified in the "Affected Environment" section for public health and safety. These generally would tend to increase area traffic and the need for parking. Cumulatively with increased visitation associated with Alternative A, they would increase traffic on neighborhood, but the intensity of the adverse impact probably would remain within the moderate threshold. Effects on parking availability would be negligible because of the commitment by the city and Wright Dunbar, Inc. to meet the parking demands resulting from area revitalization.

Near the Wright Memorial and Huffman Prairie Flying Field, many factors besides operation of the park could affect future traffic volumes. One of the least predictable is the future mission requirements of Wright-Patterson Air Force Base. Operations at the base could be reduced or terminated under the U.S. Department of Defense's Base Realignment and Closure (BRAC) program, or could be substantially expanded if operations currently occurring at other installations were transferred to Wright-Patterson Air Force Base. These changes respectively could result in levels of service in the intersection of Ohio Highway 444 and Kauffman Avenue that were much worse or considerably better than those predicted by modeling in the park transportation study (Burgess & Niple, Limited 2002).

Some of the other factors that could affect traffic volumes in the vicinity of the flying field and Wright Memorial include the size of the student body at Wright State University, including the percent that live on cam-

pus and the percent that commute; the price of gasoline; and changes in population in Montgomery and Greene Counties. In comparison to these factors, the effects of park-related traffic changes beyond the immediate vicinity of the intersection of Ohio Highway 444 with Kauffman Avenue would be negligible.

Conclusions

Park-related visitation would have a long-term, indirect, adverse effect of minor to moderate intensity on traffic on South Williams Street. The effects on traffic on West Third Street would be negligible to minor. Ohio Highway 444 would have negligible traffic effects. Changes in levels of service at the intersections in both of these areas also would be negligible.

Insufficient parking would be available at Huffman Prairie Flying Field and the Wright Memorial. Long-term, direct, adverse effects of moderate intensity would result at both of these sites. Negligible effects would occur near The Wright Cycle Company complex, where others have committed to providing adequate parking to support area revitalization.

ALTERNATIVE A IMPACTS ON VISITOR USE AND EXPERIENCE

Methodology

This analysis consolidates the entire spectrum of components that compose the visitor experience associated with an alternative. Impacts on visitor use and experience were evaluated using the process described in the "General Evaluation Method" section. Impact threshold definitions for visitor use and experience are as follows.

> *Negligible*: Changes in the visitor experience would not occur. There would not be any noticeable change in visitor experience or in the defined indicators of visitor satisfaction or behavior.
>
> *Minor*: Changes in visitor use and/or experience would be detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative, but the changes would not appreciably alter critical characteristics of the visitor experience.
>
> *Moderate*: Critical characteristics of the desired experience would be changed, or the number of participants engaging in an activity would be substantially altered. Visitor satisfaction would change as a result of the alternative.
>
> *Major*: Multiple critical characteristics of the desired experience would be eliminated or detracted from, or would be created or greatly enhanced. Participation in desired experiences would be considerably changed, and would result in substantial changes in the defined indicators of visitor satisfaction or behavior.

The geographic area evaluated for impacts on visitor use and experience included The Wright Cycle Company complex and adjacent Pekin Theater area, Huffman Prairie Flying Field, and the Wright Memorial, plus the transportation corridors leading to these facilities.

Cumulative effects that would occur within and outside this area were determined based on the "Cumulative Effects Analysis Method" section.

Visitor use and experience issues identified during scoping and addressed in the impact analysis included:

- Adequate visitor amenities, such as parking and toilets;
- Opportunities for additional visitor programming;
- Community outreach, interpretation, and programs, including the connection between the park and neighbors;
- Continuity of the experience between Huffman Prairie Flying Field and the Wright Memorial, and the ability to interpret the experience;
- Ease of visitor access to Huffman Prairie Flying Field and the effects of the travel route between the interpretive center and the flying field on the quality of the visitor experience;
- Park closures to accommodate base operations;
- Maintaining a consistently high-quality visitor experience; and
- Effects on the character of the sites.

Regulations and Policies

It is a management policy of the National Park Service to ensure the quality of the visitor experience. Current laws and policies require that the conditions in Table 26 be achieved in Dayton Aviation Heritage National Historical Park for visitor use and experience.

TABLE 26: DESIRED FUTURE CONDITIONS FOR VISITOR USE AND EXPERIENCE

Desired Condition	Source
Visitors have opportunities to enjoy the park in ways that leave resources unimpaired for future generations.	Organic Act *Management Policies 2001*
Recreational uses are promoted and regulated. Basic visitor needs are met in keeping with the park purposes.	Organic Act Title 36, *Code of Federal Regulations* *Management Policies 2001*
Visitors understand and appreciate Dayton Aviation Heritage National Historical Park values and resources and have the information necessary to adapt to the area's environments.	*Management Policies 2001*
To the extent feasible, facilities, programs, and services in the park are accessible to and usable by all people, including those with disabilities.	Americans with Disabilities Act Architectural Barriers Act Rehabilitation Act *Management Policies 2001*

Regulations governing visitor use and behavior in units of the national park system are contained in Title 36 of the *Code of Federal Regulations* and in Dayton Aviation Heritage National Historical Park's superintendent's compendium. These regulations have the force of law and address a number of use limitations that affect visitor experience. However, the full body of laws, regulations, and policies leave considerable room for judgment regarding the best mix of types and levels of visitor use activities, programs, and facilities.

Analysis

Adequate Visitor Amenities. As described in the transportation analysis, adequate parking for visitors would be available throughout the next 20 years in the vicinity of The Wright Cycle Company. As a result, parking availability would have a negligible effect on visitor use and experience in this area.

During weekdays and the off-peak season at the Wright Memorial and Huffman Prairie Flying Field, adequate parking usually would be available. During these times, the availability of parking would have a negligible effect on the visitor experience.

At Huffman Prairie Flying Field during peak-season weekends in 2025, there would be 25 parking spaces and an estimated demand for 65 parking spaces. However, it may be feasible for the visitors who cannot find a space in the parking lot to park along the roads around the flying field. Because overflow parking probably would be available, the intensity of the long-term, adverse, direct effect of insufficient parking would be minor.

At the Wright Memorial during peak-season weekends in 2025, parking demand (about 75 spaces) would exceed the available parking supply (46 spaces). As described in the "Affected Environment" section, there is no overflow parking in this area. Visitors who had difficulty finding parking may have a reduced level of satisfaction in their visit (an adverse effect of moderate intensity), while others might leave the site without getting out of their cars or visiting the interpretive center (an adverse effect of major intensity). However, current management practices would include the ability to provide alternate approaches if such parking problems arose. For example, a shuttle service could be provided by a partner to provide transport from an overflow parking lot at another site. With such mitigation, the intensity of the long-term, adverse, direct effect on the visitor experience would be minor to moderate.

The U.S. Air Force currently provides portable toilets at Huffman Prairie Flying Field from April to October and during special events during the other months. Although visitation at this site is low during the winter and early spring, visitors to the flying field during this time may perceive a minor adverse effect from the absence of toilets.

Opportunities for Visitor Programming and Community Outreach. Alternative A would continue the use of one educational specialist to provide onsite and offsite school programs. However, there would be limited opportunities to expand programming and outreach. Continuing current levels of programming and outreach through 2025 would have negligible effects.

Continuity of Experience and Ease of Visitor Access. The map entitled Existing Conditions at Huffman Prairie Flying Field and Wright Memorial on page 9 shows the circuitous route that drivers must navigate to travel from the interpretive center at the Wright Memorial to Huffman Prairie Flying Field. Many drivers find this five-mile-long route to be confusing, inconvenient, or both, and some may forgo a visit to the flying field because of the perceived challenges in getting there. The trip takes about 15 minutes for a driver who knows the route, and can take longer for a driver who is concerned about wayfinding. As a result, there is a low continuity of experience between the sites. Together, these factors would continue to have direct and indirect, long-term, adverse effects of moderate intensity on visitor use and experience.

Park Closures to Accommodate Base Operations. The Wright-Patterson Air Force Base Safety Office has identified the normal visitation threshold at Huffman Prairie Flying Field that would ensure visitor safety as 400 people per day. Special events can have higher visitation levels, but they must be scheduled in advance with the Safety Office.

Visitation at Huffman Prairie Flying Field is expected to increase gradually over the 20-year planning period. By the year 2025, the normal visitation threshold may be exceeded on summer weekends.

If visitor management practices were not changed, limiting visitation to meet the safety threshold could result in a moderate, adverse effect on the visitor experience. However, it is anticipated that as visitation increases, the National Park Service and U.S. Air Force will develop more effective visitor management and safety procedures that will minimize the need to close this unit more frequently. As these procedures were implemented, the long-term effects of continued Air Force operations on visitor use and experience would be negligible. Because this would apply equally to all alternatives, this discussion was not included in the evaluation of effects of Alternative B and Alternative C.

Maintaining a Consistently High-Quality Visitor Experience. Alternative A would not use carrying capacities to address issues affecting the visitor experience. In the early years, when park visitation was low, there would be little effect on the quality of the visitor experience. However, as visitation increased toward the anticipated 300,000 to 400,000 people annually, the quality of the experience would decrease for some visitors, especially those visiting the park in the summer. In particular, concerns would be associated with:

- Visitors having difficulty hearing and seeing exhibits and interpretive talks;
- Crowding at the facilities;
- Lack of parking availability at the Huffman Prairie Flying Field Interpretive Center; and
- Changes in the character of the landscape through the development of social trails in the Historic Landscape zones at Huffman Prairie Flying Field and the Wright Memorial.

For visitors who arrived at times when the park was less intensively used, such as weekdays or winter months, these long-term conditions would have negligible to minor adverse effects on the quality of their experience. Perceptions would vary among individuals, but for many visitors during weekends throughout the spring, summer, and fall, the intensity of the long-term, adverse effect would be minor to moderate. This would pose a substantial level of concern because these visitors represent a sizeable portion of the park's annual visitation.

Effects on the Character of the Sites. As visitation increased, there would be an increase in the wear occurring on park sites. In areas with buildings or paving, these changes would be addressed by increases in routine maintenance to prevent changes in character associated with deterioration. As a result, there would be a negligible effect on the character of these sites.

Within in the Historic Landscape zones at Huffman Prairie Flying Field and the Wright Memorial, increases in visitation would lead to increased foot traffic in grassy areas. In some areas, the vegetation would not be able to withstand the level of use and the sites would develop patches of bare dirt and dirt trails between commonly visited locations. While the perception of these conditions would vary among visitors, they generally would result in a long-term, adverse effect of minor intensity on the character of the resources within the Historic Landscape zones.

Cumulative Impacts

Dayton Aviation Heritage National Historical Park is unique in its ability to tell the story of the birth of aviation and the early development of controlled, powered flight. The park also is unique in its celebration of Paul Laurence Dunbar and its ability to convey his literary prowess, contribution to American literature, importance as a source of pride to the African-American commu-

nity, and friendship with the Wright brothers in a time of strained race relations.

Dayton Aviation Heritage National Historical Park tells only two of the many stories in the Miami Valley that relate to innovation, accomplishment, and cultural pride. Visitors benefit from the presence of many other cultural facilities throughout the Dayton area. As Dayton Aviation Heritage National Historical Park becomes more established, it is expected to serve as a catalyst for the development of additional opportunities for citizens to experience their heritage and gain a broader understanding of history and how events a century or more past continue to shape our world.

Conclusions

Many of the effects of Alternative A on visitor use and experience at The Wright Cycle Company complex would be negligible. However, an insufficient number of parking spaces during busy summer weekends by 2025 could have long-term, adverse, direct effects on the visitor experience of minor intensity at Huffman Prairie Flying Field and minor to moderate intensity at the Wright Memorial. During weekdays and the off-peak season, adequate parking usually would be available and parking would have a negligible effect on the visitor experience.

Minor adverse effects could occur during off-peak months from the absence of toilets at Huffman Prairie Flying Field.

The circuitous drive between the flying field and interpretive center, and the low level of continuity between the two sites would have direct and indirect, long-term, adverse effects of moderate intensity on visitor use and experience.

During busy summer weekends by 2025, the quality of the experience could decrease for many visitors because of crowding, the inability to see and hear interpretation, and changes in the landscape character in the Historic Landscape zones at the flying field and Wright Memorial. For many visitors, the intensity of the long-term, adverse effect would be minor to moderate.

ALTERNATIVE A SUSTAINABILITY AND LONG-TERM MANAGEMENT

Consideration of long-term impacts and the effects of foreclosing future options are addressed in this section. The intent of this analysis is to identify sustainable development that meets the needs of the present without compromising the ability of future generations to meet their needs. These three analyses are required by the National Environmental Policy Act and the Council on Environmental Quality (1978) guidelines for its implementation.

The Relationship between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

The intent of this determination is to identify whether the alternative to continue current management would result in trading the immediate use of the land for any long-term management possibilities or the productivity of park resources that would affect future generations. It is intended to determine whether Alternative A would be a sustainable action that could continue over the long-term without environmental problems.

Alternative A would be a sustainable action that would not change the use of Dayton Aviation Heritage National Historical Park or affect the long-term productivity of lands affected by its operation for future generations.

Any Irreversible or Irretrievable Commitments of Resources which Would Be Involved Should the Alternative Be Implemented

The intent of this evaluation is to identify whether this alternative would result in effects that could not be changed over the long term or would be permanent. An effect on a resource would be irreversible if the resource could not be reclaimed, restored, or otherwise returned to its condition before the disturbance. An irretrievable commitment of resources involves the effects on resources that, once gone, cannot be replaced or recovered.

Alternative A would not involve the irreversible or irretrievable commitment of resources. No resources would experience major adverse impacts and no impairment of park resources would occur as a result of this alternative.

Any Adverse Impacts which Cannot Be Avoided Should the Action Be Implemented

The intent of this determination is to identify whether this alternative would result in impacts that could not be fully mitigated or avoided. The focus of this assessment is on real environmental issues that would involve major impacts if action was taken.

None of the effects identified in this assessment of Alternative A would be considered major adverse impacts. The implementation of this alternative for managing The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial would not result in impairment of any resources that would affect the basic purpose of Dayton Aviation Heritage National Historical Park.

ENVIRONMENTAL IMPACTS OF ALTERNATIVE B

ALTERNATIVE B IMPACTS ON ENDANGERED, THREATENED, AND OTHER SPECIAL STATUS SPECIES AND THEIR HABITATS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Compared to Alternative A, Alternative B would have negligible effects under the National Environmental Policy Act on endangered, threatened, and other special status species and their habitats in the vicinity of The Wright Cycle Company complex. This area is heavily urbanized and all such species were removed when the area was developed more than 130 years ago. Under the Endangered Species Act, Alternative B would result in no effect / no adverse modification in this area.

As discussed in the "Affected Environment" section, the Wright-Patterson Air Force Base (2001c) endangered species management plan addresses five species of concern in the vicinity of features on or near this Air Force installation that would be associated with Alternative B. Effects of Alternative B on each of these species are presented below.

Indiana Bat

Alternative B would involve considerable construction within the area designated as primary habitat for the Indiana bat at Wright-Patterson Air Force Base. Specifically:

- At the Wright Memorial, Alternative B would include the expansion of parking and the construction of a new road from the parking lot to the south end of the new bridge across Ohio Highway 444. This could require the removal of several mature trees, primarily Austrian and Scotch pines. Pines typically do not provide maternity sites for the Indiana bat, but they could provide roosting sites for this species.
- On the north end of the bridge, this alternative would include construction of an earthen embankment in the Prime Base Engineer Emergency Force (BEEF) Training Area woodlot from the bridge deck down to the existing grade. A new roadway would be built down the embankment to the junction with Marl Road. Although this woodlot includes several buildings and roads, it is the largest wooded area on Wright-Patterson Air Force Base outside the Mad River riparian corridor. Removal of numerous trees would be required to construct these transportation facilities in this area. Some of these trees could be suitable now or in the future for maternity or roosting uses by Indiana bats.
- The borrow area for the fill for the earthen ramp would have to be nearby, within the retention basis of Huffman Dam. This would likely put the borrow area in the primary habitat for the Indiana bat. Presumably, wooded areas could be avoided so that effects on potential maternity or trees would be negligible. The borrow area probably would be within the bat's foraging habitat, but fields for foraging are relatively common in the vicinity, and the

effect on the species would be negligible.

- A new hangar for the replica Wright B Flyer would be constructed near Huffman Prairie Flying Field, possibly at the former site of the Combat Arms Training and Maintenance facility near the flying field's southwest corner. The grassy field in this area may be within the bat's foraging habitat but fields for foraging are relatively common. Moreover, this already is a disturbed site that has poor suitability for the Indiana bat. Therefore, effects on the bat at this site would be negligible.

The short-term, construction-related impacts of all Alternative B components would be negligible. The requirements in the base's endangered species management plan (Wright-Patterson Air Force Base 2001c) should prevent the incidental take of Indiana bats during construction. These requirements prohibit cutting of suitable trees during the spring and summer unless mist net surveys performed by qualified wildlife biologists establish that bats are not present.

Habitat loss, rather than the loss of individuals, has led to designation of the Indiana bat as endangered. Alternative B would decrease summer habitat for this species. Under the National Environmental Policy Act impact thresholds, this decrease in habitat would have a long-term, adverse, indirect effect of minor intensity on Indiana bat populations within two miles of the Wright Memorial and Huffman Prairie Flying Field. While tree removal associated with Alternative B may affect individual bats, it would not affect the distribution or viability of the Indiana bat population or the ability of the habitat to continue to support this species of concern.

Under the Endangered Species Act, Alternative B would be classified as may affect / not likely to adversely affect or adversely modify critical habitat. Because of the continuing availability of forests along the Mad River riparian corridor and other nearby areas, Alternative B's removal of trees that could be used by bats could not be meaningfully measured, detected, or evaluated.

Bald Eagle

Short-term construction effects on the bald eagle would be negligible. Bald eagles are absent in the area during the summer and visit the area only rarely during the winter. They would be unlikely to be using the area during the period when construction of the Alternative B facilities was occurring.

Under the National Environmental Policy Act impact thresholds, Alternative B could have an adverse, long-term effect on bald eagle populations within two miles of the Wright Memorial and Huffman Prairie Flying Field. Effects would be indirect, related primarily to the loss of suitable trees for nesting, perching, or roosting. There would be no direct taking of bald eagles. The effects would be of negligible intensity for the following reasons:

- There currently are no nesting bald eagles in southern Ohio, and the birds are rare winter visitors.
- Alternative B would not result in tree cutting or other changes near the Mad River, which would be the most likely use area for bald eagles.
- Although the endangered species management plan identifies the area around Gravel Lake and Twin Lakes as part of the primary habitat on the base, the nearly constant activity on nearby Ohio Highway 444 and the noise from aircraft using Wright-Patterson Air Force Base would probably discourage use of this area by this disturbance-sensitive species.

For the same reasons, using the Endangered Species Act criteria, effects on the bald ea-

gle would be categorized as no effect / no adverse modification.

Eastern Massasauga Rattlesnake

The earthen embankment on the north end of the Alternative B bridge over Ohio Highway 444 would be constructed in the Prime Base Engineer Emergency Force (BEEF) Training Area, which is designated as primary habitat for the eastern massasauga rattlesnake. The new road north from the bridge embankment to Marl Road also would be within the snake's primary habitat. The total length of these features would be about a quarter mile. The area permanently committed to these facilities would be about five acres. The construction zone would be about twice that large.

Alternative B would have the following short- and long-term, adverse, direct and indirect effects on the area's eastern massasauga population:

- Incidental taking of individual snakes would be likely as vegetation was removed from part of the woodlot in the Prime BEEF Training Area for bridge and road construction.
- All habitat within the road right-of-way, including the area where the earthen embankment was constructed, would be permanently altered to create an upland zone that would be poorly suited for use by the eastern massasauga.
- Throughout the construction zone, the existing mix of moist prairie and woodland with a coarse matrix of trees and shrubs and a broken canopy cover would be removed. This ecological setting would require many years to replace and may require human intervention to ensure that the proper setting was successfully reestablished. Throughout this time, this disturbed area would provide habitat that was poorly suited for use by the eastern massasauga.
- Construction of the embankment and road could produce a hydrologic barrier that could change the surface and ground water hydrology in the area of primary habitat to the west of these new transportation features. This could reduce the suitability of this five-acre area for use by the eastern massasauga.

The area designated by the endangered species management plan (Wright-Patterson Air Force Base 2001c) as primary habitat for the eastern massasauga totals about 150 acres. However, part of this area already is poorly suited for use by this species because of buildings, roads, and open fields. Construction of the Alternative B bridge embankment and road could cause short-term adverse effects on up to 15 acres (ten percent) within the primary habitat area. Long-term reductions in habitat could occur on up to ten acres (seven percent of the primary habitat on the base).

Under the National Environmental Policy Act impact thresholds, the intensity of the adverse impact resulting from the construction of the bridge embankment and road in the eastern massasauga's primary habitat would be moderate to major. Prior to construction of these transportation features, a more detailed investigation would be required, and consultation with the U.S. Fish and Wildlife Service would be conducted to determine if this reduction in habitat area and quality could change the vitality of this population of eastern massasauga rattlesnakes such that the continued existence of this population could be affected.

Application of the Endangered Species Act threshold criteria also indicates a level of concern. The bridge embankment and road would be likely to adversely affect the species and adversely modify its habitat (although none of the habitat on Wright-Patterson Air Force Base is designated as

critical as defined in Section 4 of the Endangered Species Act). However, more detailed studies and consultation with the U.S. Fish and Wildlife Service would be need to determine if this could jeopardize the continued existence of this population of the eastern massasauga.

Clubshell

As described in the "Affected Environment" section, the clubshell mussel probably has been extirpated from the Mad River and its tributaries in Wright-Patterson Air Force Base. Therefore, actions associated with Alternative B would have a negligible effect on this endangered species. Under the Endangered Species Act, Alternative B would result in no effect / no adverse modification for this species.

Despite the demonstrated absence of this species in the area, all construction associated with Alternative B would include implementation of an erosion control plan. The goal would be to prevent sedimentation of area waterways so that potential mussel habitat will be available now and in the future.

Blazing Star Stem Borer

The blazing star stem borer depends on "blazing star" plants of the genus *Liatris* for food. Most plants of this genus identified in a 1998 base-wide survey were located within Huffman Prairie. However, as described in the "Affected Environment" section, a few plants were noted in nearby fields. Because a seed source for *Liatris* plants is available in Huffman Prairie, it is likely that this plant, and the borer that depends on it, will slowly colonize nearby, suitable habitat.

Most of the area that would be used for construction of the Alternative B bridge embankment and new roadway to connect with Marl Road would be through a wooded area that probably is not suitable for *Liatris* plants. However, effects on these plants and the blazing star stem borer they support could occur in areas where the transportation features would impinge on grassy fields.

Fall, winter, and spring construction activities in grassland areas near Huffman Prairie would have the potential to produce an incidental taking of blazing star stem borer eggs or immature stages. Construction activities in the summer could eliminate individual *Liatris* plants so they would not be available to support blazing star stem borers' eggs and young in the next season. These short-term, direct and indirect, adverse effects would be of minor intensity because they would not affect the distribution or viability of the blazing star stem borer population in the vicinity of Huffman Prairie or the ability of the larger area that includes Huffman Prairie to continue to support the blazing star stem borer.

After construction, the lands used for the bridge embankment and road right-of-way would no longer be available to support *Liatris* plants and their associated borers. This long-term, indirect, adverse effects would be of minor intensity for the same reasons described in the preceding paragraph.

Cumulative Impacts

As described in Alternative A, the special status species considered in this environmental impact statement are in situations of concern primarily because of human actions that resulted in the loss of habitat. Actions leading to the decline of species, such as urbanization, conversion of lands to agricultural purposes, and discharge of pollutants to waterways, will continue regardless of management actions taken by the National Park Service and will increase the environmental stresses on these and other

species. Similarly, beneficial actions to restore species, both locally and regionally, will continue.

Alternative B would have negligible cumulative effects on the clubshell or bald eagle. The clubshell probably has been extirpated from the area. The bald eagle is a rare visitor to the base and all of southern Ohio during the winter and does not use the area in the summer. Regardless of actions associated with Alternative B, bald eagles probably would find other areas more desirable because of the high levels of disturbance from other sources that already are occurring in the vicinity.

Cumulative effects of Alternative B on the Indiana bat would be negligible. This species is limited primarily by the loss of winter habitat, which would not be affected by Alternative B. If winter habitat can be protected and/or expanded, the continued availability of summer habitat in the mature trees located in residential yards, riparian corridors, and woodlots throughout the region will help ensure that the distribution and viability of the Indiana bat are not diminished.

There is concern about the cumulative effects of Alternative B on the eastern massasauga. Its Global Heritage Status ranking of G3 (vulnerable globally) indicates the moderate cumulative level of concern attributed to the status of this species. Its historical presence in 28 Ohio counties was reduced to only nine counties in 1992. Habitat stresses since then could have further decreased its distribution. Likewise, this small rattlesnake apparently was quite common when the base was first built, but sightings are now reported only once every two or three years. Alternative B would reduce the long-term suitability of up to ten percent of its primary habitat on the base and contribute to its continued cumulative decline throughout its range.

Cumulative effects of Alternative B on the blazing star stem borer would negligible. The long-term alteration of potential habitat outside Huffman Prairie to accommodate the bridge embankment and new roadway would not affect the distribution or viability of the local population of this small moth. Active management to encourage this species by The Nature Conservancy and U.S. Air Force at nearby Huffman Prairie would not be affected by the construction or operation of Alternative B transportation components.

Conclusions

Compared to Alternative A, Alternative B would have negligible effects under the National Environmental Policy Act on endangered, threatened, and other special status species and their habitats in the vicinity of The Wright Cycle Company complex. Under the Endangered Species Act, Alternative B would result in no effect / no adverse modification in this area.

At the sites within or near Wright-Patterson Air Force Base, Alternative B would have the following effects:

- **Indiana Bat:** The short-term, construction-related impacts of Alternative B would be negligible. In the long term, removal of some potential roost and maternity trees as part of this alternative would reduce the availability of summer habitat locally and would have an adverse, indirect effect of minor intensity on Indiana bat populations. Under the Endangered Species Act, Alternative B would be classified as may affect / not likely to adversely affect or adversely modify critical habitat.
- **Bald Eagle:** Short-term construction effects on the bald eagle would be negligible. Alternative B could have an adverse, indirect, long-term effect on

bald eagle populations, but the intensity would be negligible. Using the Endangered Species Act criteria, effects on the bald eagle would be categorized as no effect / no adverse modification.

- **Eastern Massasauga Rattlesnake:** Alternative B would have short- and long-term, adverse, direct and indirect effects on the area's eastern massasauga population. The intensity of the impact would be moderate to major. Using the Endangered Species Act threshold criteria, Alternative B would be likely to adversely affect the species and adversely modify its habitat. Consultation with the U.S. Fish and Wildlife Service would be required to determine if reductions in habitat area and quality associated with Alternative B could change the vitality of this population such that the continued existence of this population could be affected.
- **Clubshell:** The clubshell mussel probably has been extirpated from the Mad River and its tributaries in Wright-Patterson Air Force Base. Therefore, actions associated with Alternative B would have a negligible effect on this endangered species. Under the Endangered Species Act, Alternative B would result in no effect / no adverse modification for this species.
- **Blazing Star Stem Borer:** Construction activities associated with Alternative B would have short-term, direct and indirect, adverse effects of minor intensity that would not affect the distribution or viability of the local population of this small moth. Long-term operational effects of the Alternative B transportation components would be long-term, indirect, adverse, and of minor intensity.

The cumulative effects on these species except the eastern massasauga would be negligible. Alternative B would reduce the long-term suitability of up to ten percent of the eastern massasauga's primary habitat on Wright-Patterson Air Force Base and could contribute to the continued decline of this small rattlesnake throughout its range.

With regard to impairment, the 1916 Organic Act specifically refers to preventing impairment of the national parks "and the wild life *therein*" (emphasis added). The primary habitat of the eastern massasauga that would be adversely affected by Alternative B is outside the boundaries of Dayton Aviation Heritage National Historical Park. Therefore, Alternative B would not result in the impairment of endangered, threatened, and other special status species and their habitats inside Dayton Aviation Heritage National Historical Park.

ALTERNATIVE B IMPACTS ON NATIVE VEGETATION, INCLUDING ECOLOGICALLY CRITICAL AREAS OR UNIQUE NATURAL RESOURCES

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

The Wright Cycle Company Complex. Alternative B would have negligible effects on native vegetation, including ecologically critical areas or unique natural resources. This area does not include areas of native vegetation and none of the management features of Alternative B would alter the existing vegetation patterns.

Wright Memorial. The effects of Alternative B on native vegetation in this area would be negligible. Native vegetation in this area was replaced with plantings when this park was established more than 60 years ago. Even the park landscape would be little affected by this alternative because:

- The existing vegetation row, primarily Austrian and Scotch pines, along the south fence line could be maintained when this fence was removed and the new road was built from the west end of the parking lot to the south end of the new bridge across Ohio Highway 444.
- The eastern third of the park through which the new road would be constructed has an open, meadow-like character with few trees or shrubs. The woody vegetation could be avoided during road design or replaced after construction was completed.

Huffman Prairie Flying Field. The effects of Alternative B on the native vegetation of Huffman Prairie Flying Field would be negligible. As described in the "Affected Environment" section, the flying field vegetation consists mostly of non-native grasses. The quarter-acre prairie garden of native grasses and flowers within the flying field near corner marker 1 would not be altered by any of the construction or management actions that would be included in Alternative B.

Huffman Prairie. The effects of Alternative B on the native vegetation of Huffman Prairie, which is adjacent to the flying field but outside the park boundary, would be negligible. Project features would avoid this area. There would not be any changes in the prairie's ability to continue fulfilling its role as a unique natural resource that led to its designation as an Ohio Natural Landmark.

Other Nearby Vegetated Areas. Effects on native vegetation in nearby vegetated areas would be short- and long-term, direct, and adverse. Construction of the bridge embankment and road on the north side of Ohio Highway 444 would involve clearing approximately ten acres of second-growth native hardwood forest. About ten percent of the cleared area permanently would be converted to asphalt surfaces that would no longer support vegetation, half would be allowed to revert to native forest, and the remainder would be maintained as a mowed area with a mixture of native and non-native grasses, forbs, and shrubs.

Applying the impact thresholds presented in the methodology description in Alternative A, the intensity of the short-term construction and long-term operational impacts of the bridge embankment and road on native vegetation would be minor. Small (up to 100 acres or more) patches of native hardwood forests are common throughout the area. While the effects of road construction and operation would be perceptible, they would be localized and would not affect the viability of the plant community. There would not be any changes to ecologically critical areas or unique natural resources as a result of the construction or operation of these features.

Cumulative Impacts

Cumulative impacts on native vegetation would be similar to those described for the alternative to continue current management. Although Alternative B would permanently remove the road surface from vegetative cover and change vegetation on the embankment and within the right-of-way from forest to maintained grassland, it would not alter trends toward restoring native vegetation in selected areas on Wright-Patterson Air Force Base, along the river corridors, and throughout the region.

Conclusions

Alternative B would have negligible effects on native vegetation at The Wright Cycle Company complex, Huffman Prairie, Huffman Prairie Flying Field, and the Wright Memorial. The effects on second-growth native hardwood forests in the vicinity of the bridge embankment and road north of Ohio Highway 444 would be adverse, direct, short- and long-term, and of minor intensity. This alternative would not result in the impairment of native vegetation, including ecologically critical areas or unique natural resources.

ALTERNATIVE B IMPACTS ON SOILS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

At The Wright Cycle Company complex, Alternative B would involve the construction of a new storage and maintenance facility within the expanded park boundary. This would result in a relatively small area of disturbance (less than the typical lot size of 8,000 square feet) on a flat grade. The construction-related impacts on soils in this area would be direct and adverse. Because of the small area involved and the effectiveness in this type of area of the best management practices that would be applied, the intensity of the short-term impacts would be minor. A protective vegetation cover and/or paving of surfaces to provide parking would be installed after construction was completed and would protect the soils so that the long-term effects would be of negligible intensity.

At the Wright Memorial, Alternative B would involve the disturbance of soils for the construction of additional parking near the interpretive center and a road from the existing parking lot to the south end of the bridge across Ohio Highway 444. All activities would be conducted in conformance with an erosion control plan that would employ best management practices to minimize the area of soil disturbance and prevent the erosion of disturbed soils. In areas where the road alignment would descend the slope, more advanced soil protection techniques such as hydro-mulching, use of the Soil Guard® spray-on emulsion that creates a protective crust, or installation of jute netting may be applied to ensure that soils were protected. The short-term, construction-related impacts on soils at the Wright Memorial would be direct, adverse, and of minor intensity.

When construction was completed, a vegetative cover of grasses similar to that currently existing in the area would be established. These soils are relatively easy to revegetate, as demonstrated by the effective vegetation cover that quickly was restored in the construction zone around the interpretive center and parking lot. As a result of the area's ability to quickly establish a protective vegetative cover, the long-term effects on the soils of the Wright Memorial would be negligible.

On the north end of the bridge, a substantial earthen embankment consisting of approximately 116,000 cubic yards of material would be built to carry traffic from the level of the bridge to the existing grade. A corresponding volume of soil disturbance would occur at the embankment borrow areas, which also would have to be located within the retarding basin of Huffman Dam. An erosion control plan employing best management practices would be imple-

mented throughout the construction phase. Stabilization of the embankment slopes during construction potentially could require use of the advanced soil protection techniques identified earlier for use in sloping areas of the Wright Memorial. Because of the large areas involved for the embankment and borrow areas, short-term, construction-related impacts on soils would be direct, adverse, and of moderate intensity.

When construction was completed, a vegetative cover of grasses and native woody vegetation similar to that currently existing in the area would be established. These soils are relatively easy to revegetate. As a result of the area's ability to quickly establish a protective vegetative cover, the long-term effects on soils used for the embankment and borrow area would be negligible.

The new road north from the bridge embankment to Marl Road would result in a relatively narrow corridor of soil disturbance on a flat grade. The construction-related impacts on soils in this area would be direct and adverse. Because of the small area involved and the effectiveness in this type of area of the best management practices that would be applied, the intensity of the short-term impacts would be minor. A protective vegetation cover would be established after construction was completed and would protect the soils so that the long-term effects would be of negligible intensity.

Cumulative Impacts

Cumulative impacts would be similar to those described in Alternative A. The long-term trend in the area is toward increased protection of the soil resource. In the long-term, Alternative B would continue the protection of soils in and near the park units and would not alter local or regional soil resource trends.

Conclusions

Direct, adverse, short-term impacts on soils would be related to the new construction associated with Alternative B. At The Wright Cycle Company complex and the Wright Memorial, the effects would be of minor intensity. North of the bridge, short-term impacts would be moderate for the bridge embankment and borrow areas and minor along the road corridor north to Marl Road. Long-term impacts on soils in these areas would be negligible. Alternative B would not result in the impairment of soil resources of Dayton Aviation Heritage National Historical Park.

ALTERNATIVE B IMPACTS ON WATER QUALITY AND HYDROLOGY

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Runoff, Sediment, and Chemical Pollution near The Wright Cycle Company Complex. Construction of a new storage and maintenance facility at The Wright Cycle Company complex in Alternative B would result in the conversion of up to 8,000 square feet to impermeable surfaces. This would be a direct, long-term, adverse effect on runoff generation. However, the additional runoff generated from this area would not be detectable compared to the runoff that would occur within the same city block under Alternative A. Therefore, the intensity would be negligible.

As described for soils, best management practices would be used to control soil erosion by water. During construction of the storage and maintenance facility, an indirect, short-term, adverse effect on sediment loading of waters may occur but probably would not be detectable (negligible intensity) from normal sediment loading because of the effectiveness of soil protection practices. After construction was completed, sediment loading would be similar to that in Alternative A, and the long-term effect would be negligible.

After the storage and maintenance facility was built, all functions involving the storage and use of chemicals would be consolidated at this one location. The National Park Service would be better able to ensure the use of the least toxic substances to meet each need; the proper use and storage of chemicals, including the use of secondary containment to catch leaks or spills; and the proper disposal for used or outdated chemicals. Although there are no indications that problems currently exist in these areas, better prevention could be ensured. This would be a long-term, indirect, beneficial effect on water quality of negligible intensity.

Runoff, Sediment, and Chemical Pollution at Transportation Sites. The expanded parking and new road and bridge associated with moving visitors more effectively between the Huffman Prairie Flying Field Interpretive Center and flying field would slightly increase the areas of impermeable surfaces at the Wright Memorial and Prime Base Engineer Emergency Force (BEEF) Training Area north of the bridge. However, these features are surrounded by large expanses of permeable soils that would be able to absorb the additional runoff and convey it to the ground water system. The direct, long-term, adverse effect on volumes of runoff generated would be negligible compared to Alternative A.

A notice of intent must be submitted to the Ohio Environmental Protection Agency for any construction project that will disturb one or more acres of land. The notice of intent must include a storm water management plan that describes the erosion control measures that will be taken during project implementation. Monitoring is required throughout the construction phase to ensure that the control measures are effective. The notice of intent and associated storm water management plan will help ensure that erosion will be minimized during construction of the Alternative B transportation features.

Despite these actions, a small increase in sediment loading could occur in Hebble Creek, which would be within a couple hundred yards of the construction site for the new bridge embankment and even closer to the north end of the new road between the bridge and Marl Road. Compared to Alternative A, this indirect, adverse, short-term effect on the water quality of Hebble Creek associated with sediment loading would be minor.

Within the Mad River, the increased sediment input from Hebble Creek probably would not be detectable compared to the sediment load normally transported by the river. As a result, the indirect, adverse, short-term effect on the water quality of the Mad River would be negligible.

The intensity of the short-term construction effect on sediment transport at the Wright Memorial also would be negligible. The area of disturbance at this site would be relatively small, and areas of disturbance on slopes would receive enhanced soil protection measures to ensure their stability. Moreover, this construction site is a long distance from any waterways, and even if some soil particles were transported off the immediate vicinity, they would be captured in nearby undisturbed areas or retention structures before they could reach local streams.

After construction was completed, all areas would be revegetated. The protective vegetation cover would virtually eliminate the generation of sediment, and the long-term effects on water quality at all areas compared to Alternative A would be negligible.

The potential for chemical pollution associated with the construction of the Alternative B transportation facilities primarily would be associated with the use of petroleum products (fuels and lubricants) for construction equipment. Because the construction site for the bridge embankment would be on Air Force property less than two miles from a major city of Dayton well field, the National Park Service and U.S. Air Force would require that the contractor prepare and implement a management and spill response plan for fuels, lubricants, and any other chemicals used during construction that would have the potential to contaminate surface or ground water. Input on the plan could be obtained from the city of Dayton and Miami Conservancy District. This plan could include measures such as prohibiting maintenance of vehicles on the site and the mandated use of spill pans during fueling. Because these measures would effectively prevent virtually all construction-related chemical pollution, the short-term effects on water quality would be negligible.

Runoff, Sediment, and Chemical Pollution at the Replica Wright B Flyer Hangar. Alternative B would include the construction and operation of a hangar for the replica Wright B Flyer near the flying field. The impervious surface associated with the roof and driveway of this structure would produce a small increase in the volume of runoff. However, the building would be surrounded by a large expanse of vegetated, permeable soils that would be able to absorb the additional runoff and convey it to the ground water system. The direct, long-term, adverse effect on volumes of runoff generated would be negligible compared to Alternative A.

Short-term sediment loading effects on nearby Hebble Creek would be negligible. It may be possible to build the hangar on an existing building pad, which would eliminate the need for soil disturbance. Even if a new foundation was required, the small area involved, effectiveness of soil protection measures, and the distance across vegetated areas and the road would prevent sediment from entering Hebble Creek.

Operation of the replica Wright B Flyer from the hangar during the summer months would involve the transport and handling of small volumes of fuels and lubricants at this site. To prevent pollution of surface and ground waters by these materials, Alternative B would include the following:

- The National Park Service and U.S. Air Force would work with the plane's owner and operator, a nonprofit foundation named Wright "B" Flyer, Inc., to develop and implement a spill prevention and response plan.
- The building foundation would not include floor drains, and there would not be any sinks or toilets at this site. This would prevent site users from disposing of chemicals via drains.
- An education program for its members would be developed by Wright "B" Flyer, Inc., with input from the National Park Service and U.S. Air Force. The focus would be on the proper handling and disposal of chemicals and the need to protect local soil and water resources from pollution.

Because of these measures, the new hangar site would have a negligible long-term effect on chemical pollution. Aside from the hangar site, Alternative B would not involve any changes in the use of chemicals at any of the park units compared to Alternative A. Therefore, the long-term effects

on the potential of chemicals to pollute surface and ground water would be negligible.

Flood Management Capacity of the Retarding Basin. Alternative B facilities at The Wright Cycle Company complex and the Wright Memorial would not be within the retention basin of Huffman Dam. Therefore, this discussion is limited to the facilities on the north side of Ohio Highway 444.

Miami Conservancy District (2001) policies and procedures regarding retarding basins require that any changes that could diminish the flood storage capacity behind Huffman Dam will have to be compensated with equivalent storage elsewhere in the retarding basin. To obtain the 116,000 cubic yards of material needed for the earthen embankment on the north side of the bridge, an equivalent volume of material would be excavated from one or more borrow locations within the retarding basin. This could be challenging because of the large volume of material involved and the preference that borrow sites be outside the boundary of Wright-Patterson Air Force Base. Siting of borrow sites would be performed in consultation with the U.S. Air Force and Miami Conservancy District. However, because this requirement would be met, the short- and long-term effects of the embankment on the flood management capacity of the retarding basin would be negligible.

Fill also may be required for the road connecting the bridge embankment with Marl Road. However, the required volume would be small and could probably be obtained from borrow areas along the road alignment. The new road would require the importation of about 500 cubic yards of asphalt. If required by the Miami Conservancy District, an equivalent volume of soil from within the retarding basin could be hauled away for use as fill elsewhere in the Dayton area. As a result, the short- and long-term effects of the roadway on the flood management capacity of the retarding basin would be negligible.

The new hangar for the replica Wright B Flyer would be within the retarding basin behind Huffman Dam. In preliminary discussions, Miami Conservancy District personnel indicated that they would not have problems with a hangar in this area and that a hangar would not have an adverse effect on the flood storage capacity behind Huffman Dam (Ferguson and Perdue 2003). Because this part of Huffman Prairie Flying Field is about 805 feet above mean sea level, a permit would be required from the Miami Conservancy District, consistent with the requirement that "No Non-Habitable Structures are to be constructed below elevation 830.0 without prior acquisition of a permit from the District" (Miami Conservancy District 2001).

Water Quality of the Mad River Buried Valley Aquifer. As described earlier in this section, proper management of fuels and lubricants would ensure that adverse effects on the water quality of the Mad River Buried Valley Aquifer would not occur from the construction or operation of the Alternative B features. This alternative would not alter any aspects of the U.S. Air Force's ongoing remediation of Operable Unit 5 near Huffman Prairie Flying Field. As a result, Alternative B would have a negligible effect on the water quality of the Mad River Buried Valley Aquifer.

Cumulative Impacts

Cumulative effects of Alternative B on water quality and hydrology would be similar to those described for Alternative A.

Conclusions

Construction of the bridge embankment north of Ohio Highway 444 would have a

minor, indirect, adverse, short-term effect on the water quality of Hebble Creek associated with sediment loading. All other short and long-term effects on runoff, sediment, and chemical pollution at or near Dayton Aviation Heritage National Historical Park sites would be negligible.

The placement of fill for the earthen embankment and other Alternative B features within the Huffman Dam retarding basin would be compensated with equivalent storage elsewhere in the retarding basin. As a result, the short- and long-term effects of these features on the flood management capacity of the retarding basin would be negligible.

Alternative B would have negligible effects on the water quality of the Mad River Buried Valley Aquifer. Construction- and operational-phase management plans for fuels, lubricants, and other chemicals would ensure that these materials would not pollute this drinking water aquifer.

Alternative B would not result in the impairment of water quality or hydrology of Dayton Aviation Heritage National Historical Park.

ALTERNATIVE B IMPACTS ON WETLANDS AND FLOODPLAINS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

The Wright Cycle Company Complex. At The Wright Cycle Company complex, Alternative B would have negligible effects on wetlands or floodplains. Wetlands in this area were eliminated when the area was developed for urban purposes more than 130 years ago. It is protected by Miami Conservancy District dams and levees such that it would not flood unless a flood with an expected frequency of greater than once every 500 years were to occur.

Wright Memorial. The transportation features of Alternative B would be west of the seep wetland, designated B9, at the Wright Memorial. Therefore, the effects of this alternative on wetlands in this area would be negligible. Because all of the Wright Memorial is above the 100-year floodplain for the Mad River (Federal Emergency Management Agency 1981), effects on floodplains in this area would be negligible.

Huffman Dam Retarding Basin. The final alignment of the bridge and road between the Huffman Prairie Flying Field Interpretive Center and flying field has not been established. However, the preliminary layout of facilities in the *Dayton Aviation Heritage National Historical Park Multimodal Comprehensive Transportation Study* (Burgess & Niple, Limited 2002) shows the road from the bridge embankment to Marl Road passing through wetland C18, which is the largest wetland within Wright-Patterson Air Force Base. None of the other six wetlands west of Huffman Prairie Flying Field would be affected by Alternative B features.

Approximately 450 feet of the new road would be constructed within the wetland. A road consisting of two ten-foot-wide lanes with three-foot-wide shoulders on each side, with a 15-foot right-of-way above the wetland on each side (total width of 56 feet) would require the permanent filling of 25,200 square feet, approximately 0.6 acres, of this jurisdictional wetland. The construction corridor in the wetland would be twice this width, for a short-term disturbance during construction of 1.2 acres.

Section 404 authorization under an individual permit would be required to construct this road segment. Natural and beneficial wetland functions and values would be substantially altered on the entire 1.2-acre disturbed area during construction and would be permanently altered on the 0.6-acre road area. Moreover, the character of the wetland could be altered because of hydrologic changes associated with road building or operation.

This road segment would have adverse, direct, short- and long-term effects on wetlands. Based on the impact thresholds presented in the methodology in Alternative A, the intensity of both the construction-related and long-term impacts would be major.

Marl Road and Huffman Prairie Flying Field are within the five-year and/or ten-year floodplain areas of the Mad River. The U.S. Air Force works closely with the Miami Conservancy District to maintain beneficial floodplain values within Wright-Patterson Air Force Base and to ensure that the risks of flood hazards or losses were not increased. This includes strict conformance with the requirement that any fill placed within the retarding basin of Huffman Dam below an elevation of 835 feet be compensated by an equal volume of excavation in the basin (Miami Conservancy District 2001).

To create the embankment for the Alternative B bridge, approximately 116,000 cubic yards of material would be placed in the five-year or ten-year floodplain of the Mad River. As described previously under the heading "Alternative B Impacts on Water Quality and Hydrology," an equivalent volume of material would be excavated from one or more borrow locations within the retarding basin of Huffman Dam, also within the five-year or ten-year floodplain. Alternative B also would involve the importation of about 500 cubic yards of asphalt into the floodplain and, if required by the Miami Conservancy District, the removal of an equivalent volume of soil from within the retarding basin for use as fill elsewhere in the Dayton area. Because these requirements would be met, the short- and long-term effects of the embankment and road on the Mad River floodplain would be negligible.

The new hangar for the replica Wright B Flyer near Huffman Prairie Flying Field would have negligible effects on the floodplain for the reasons described under the heading "Alternative B Impacts on Water Quality and Hydrology."

Cumulative Impacts

As described in the Alternative A analysis, there has been a substantial loss of wetlands at Wright-Patterson Air Force Base, in Ohio and throughout the United States. This trend is continuing both regionally and nationally. The permanent conversion of 0.6 acres of jurisdictional wetlands to upland areas with the implementation of Alternative B would be a small but incremental contributor to this adverse trend.

Cumulative effects on floodplains would be the same as those described for Alternative A.

Conclusions

Alternative B would have negligible effects on wetlands and floodplains in the vicinity of The Wright Cycle Company complex and the Wright Memorial. Impacts on floodplains in the Huffman Dam retarding basin also would be negligible because fill placed within the basin would be compensated by an equal volume of excavation in the basin.

The new road from the bridge embankment to Marl Road would pass through the larg-

est jurisdictional wetland on Wright-Patterson Air Force Base. This road segment would have adverse, direct, short- and long-term effects on wetlands. The intensity of both the construction-related and long-term impacts would be major. However, Alternative B would not result in the impairment of wetlands or floodplains within Dayton Aviation Heritage National Historical Park.

ALTERNATIVE B IMPACTS ON WILDLIFE AND WILDLIFE HABITATS, INCLUDING AQUATIC LIFE

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

The Wright Cycle Company Complex. Construction of a new storage and maintenance facility within the expanded boundaries of Dayton Aviation Heritage National Historical Park would have a negligible effect on wildlife species and their habitats in this area. The species that occur in and near the complex are highly adapted to the readily available habitat consisting of ornamental plantings and are adapted to the presence and activity of humans. Construction and operation of Alternative B facilities at this site would not have a measurable or perceptible change in the size, integrity, or continuity of any wildlife populations and would have a negligible effect.

Huffman Prairie Flying Field Vicinity. Construction of the bridge embankment and road associated with Alternative B would have negligible direct mortality on wildlife. However, it would temporarily eliminate up to ten acres of terrestrial wildlife habitat in the construction zone for the embankment and road. An equivalent or larger area of terrestrial wildlife habitat removal would occur in the borrow areas within the retarding basin, where the 116,000 cubic yards of fill for the embankment would be obtained.

Effects on wildlife because of loss of habitat in this area would be perceptible, but would be localized to the area of disturbance. The overall viability of wildlife populations in Wright-Patterson Air Force Base would not be adversely affected. Therefore, based on the impact thresholds included in the methodology, the adverse, short-term, primarily indirect effects of Alternative B in this area on terrestrial wildlife would be of minor intensity.

After construction was completed, about five acres of the disturbed area would be permanently converted to other uses. The remainder of the disturbed terrestrial wildlife habitat would be restored to provide habitat that, when it matured in several years, would be equivalent in quality to the pre-project wildlife habitat. The permanent change of the five acres to other uses would result in a perceptible change in wildlife populations of the area but would not affect their viability. As a result, the adverse, long-term, primarily indirect effects of Alternative B in this area on terrestrial wildlife would be of minor intensity.

Wright Memorial. The road and expanded parking at the Wright Memorial could remove several trees and would remove other vegetation, primarily grasses, within the construction zone. Areas not permanently converted to project features would be revegetated after the end of construction. Because these areas provided limited habitat for terrestrial wildlife, both short and long-term impact in this area would be ad-

verse, primarily indirect, and of negligible intensity.

Aquatic Habitat. No areas of aquatic habitat would be disturbed by the construction or operation of the Alternative B features. Effects of Alternative B on aquatic habitat within or near units of Dayton Aviation Heritage National Historical Park would be negligible.

Cumulative Impacts

Trends in the availability of wildlife habitat and in the wildlife populations they support were described for Alternative A. Alternative B would result in a small but incremental loss of high-quality terrestrial wildlife habitat in Wright-Patterson Air Force Base

Conclusions

Effects of Alternative B on terrestrial wildlife and their habitats at The Wright Cycle Company complex and the Wright Memorial would be negligible. In the vicinity of Huffman Prairie Flying Field, short- and long-term, adverse, primarily indirect effects of minor intensity would occur to terrestrial wildlife because of the loss of habitat. Effects on aquatic life and habitats would be negligible. This alternative would not result in the impairment of wildlife resources or habitats in Dayton Aviation Heritage National Historical Park.

ALTERNATIVE B IMPACTS ON ARCHEOLOGICAL RESOURCES

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

The vicinity of The Wright Cycle Company complex does not include any known prehistoric archeological resources, but historic archeological resources may be present in cellars, backyards, and vacant lots. Actions associated with Alternative B in this area, including the construction and operation of a new maintenance and storage facility within an expanded park boundary, plus the addition of new outbuildings adjacent to the National Historic Landmark structures, would be designed to have the least possible impact on archeological resources. The potential development area would be thoroughly researched and archeological investigations conducted as appropriate. Findings would help guide facility location and design to avoid adverse impacts. With mitigating measures, the adverse impacts of Alternative B would be minor and would result in a finding of no adverse effect.

At the Wright Memorial, the U.S. Air Force would continue its proven effective protection of the prehistoric burial mounds. Construction and operation of Alternative B facilities outside the mound area would have a negligible adverse impact on the mounds, and with best management practices as described above, would have negligible adverse impacts on other presently unidentified archeological resources. Actions associated with Alternative B in this area would result in a finding of no adverse effect.

The interpretation program at the Huffman Prairie Flying Field Interpretive Center would be expanded to include interpretation of the mounds, increasing visitors' appreciation for the resource, which could help to improve protection and preservation of the site. Concern has been expressed that increasing awareness of the mounds may

prompt more visitors to walk over them, but it is expected that most people would treat the mounds with the respect appropriate to gravesites. If evidence of use was noted, the U.S. Air Force would implement appropriate measures, such as better education, signage, or barriers.

Alternative B would include expanded parking near the Huffman Prairie Flying Field Interpretive Center at the Wright Memorial and a new road from the interpretive center parking lot to the south end of the new bridge. As described in the "Affected Environment" section, the Wright Memorial grounds excluding the mounds were tested for archeological sites during a survey conducted in 1991 and 1992. No prehistoric sites or historical sites were found. Therefore, impacts of Alternative B on archeological resources in this area are expected to be negligible. However, construction documents would be written to include stop-work provisions in the event that archeological resources were discovered. If sites were found during construction, a mitigation plan would be developed in consultation with the state historic preservation officer. If possible, mitigation would include relocating construction activities to avoid archeological sites.

The area of construction for the new bridge and embankment in the immediate vicinity of Ohio Highway 444 was extensively disturbed during the construction of the highway and parallel railroad track. Any surface archeological resources that may have existed in this area likely were removed or buried during the grading and filling of this site to bring it above the height of the Huffman Dam retarding basin and level it for road construction. However, deeply buried *in situ* prehistoric resources may still be present, as well as remnants of historic use concealed by fill during and after construction of the dam.

The Miami Conservancy District requires that any fill placed within the retarding basin of Huffman Dam be compensated by a equal volume of excavation in the basin. Therefore, Alternative B has the potential for disturbance to archeological resources in other areas of the retarding basin from which fill would be obtained.

Deeply buried deposits pose a difficult situation for archeologists. Standard testing methods may be inadequate to identify such deposits. Use of core samples for bridge construction can sometimes give clues to past soil surfaces and potential presence of archeological resources, and in some areas such techniques as remote sensing can detect remains. In areas inaccessible to these or routine archeological testing procedures, construction would be monitored by an archeologist meeting the Secretary of the Interior's standards. Other mitigating measures would be instigated, including clear definition of work limits, stop-work provisions in construction documents, and development of a plan to deal with human burials.

The northern area of the bridge embankment and the new road from the bridge embankment to Marl Road would be constructed in an area that was farmed, potentially with repeated plowing, prior to its inclusion in the Huffman Dam retarding basin. It may also have been subject to borrow, filling, or grading activities in association with the construction of Huffman Dam, the highway, or the Wright-Patterson Air Force Base runways. Even though there may be a low probability of archeological resources in this area, archeological investigations would be conducted before final locations for the bridge embankment and road were established, and construction would be monitored as described above.

If sites were found during construction, either by a monitoring archeologist or by construction workers, a mitigation plan

would be developed in consultation with the state historic preservation officer. If possible, mitigation would include relocating construction activities to avoid archeological sites.

If buried human remains or cultural items potentially subject to the Native American Graves Protection and Repatriation Act were encountered during construction on NPS property, activities in the area of the find would be halted. The park superintendent would be notified immediately by telephone and in writing. The find would be protected from weather and other disturbance, including vandalism and looting.

The National Park Service would follow the appropriate provisions of the implementing regulations for the Native American Graves Protection and Repatriation Act contained in 43 *Code of Federal Regulations* 10. Procedures for the National Park Service are cited in *Director's Order #28: Cultural Resource Management* and further discussed in Appendix R of *Cultural Resource Management Guideline NPS-28* (NPS 1998b). Additional information is available on the following NPS Internet site:

http://www.cr.nps.gov/NAGPRA/

As soon as possible, but no later than three working days after receipt of the written confirmation of notification, the superintendent would notify the appropriate Indian tribes and begin consultation about the disposition of human remains, funerary objects, sacred objects, or objects of cultural patrimony.

If human remains potentially subject to the Native American Graves Protection and Repatriation Act were encountered during construction on U.S. Air Force property, activities in the area of the find would be halted, and the find would be protected as described above. The Air Force cultural resource coordinator would be notified immediately by telephone and in writing. The Air Force would notify the appropriate Indian tribes as soon as possible (as described for the National Park Service, above) so that consultation could begin.

On Air Force property, the above law and regulations and the Air Force cultural resource regulations and guidelines would apply. For more information, see Air Force Instruction 32-7065, 1 June 2004, available at http://www.e-publishing.af.mil. The Air Force coordination process with the Ohio State Historic Preservation Officer and others would be implemented instead of, or possibly in addition to, the NPS process.

Additional agency-specific rules and guidelines regarding implementation of the Native American Graves Protection and Repatriation Act have been developed for other federal agencies, such as the U.S. Department of Transportation. These would be followed where appropriate, such as a discovery in the Ohio Highway 444 right-of-way. The responsible federal official also would notify the Ohio State Historic Preservation Officer and other agency officials.

The preferred treatment for Native American remains would be to leave the remains undisturbed and redesign the project to avoid the site.

Burials not subject to the Native American Graves Protection and Repatriation Act also would be protected from further disturbance. They would be reported immediately to the responsible federal agency official, the appropriate local authorities (coroner and sheriff), and the Ohio State Historic Preservation Officer.

The commitment to conduct further archeological investigations for resources prior to selecting the final alignment, monitor construction, develop protective measures, and avoid, where possible, any resources that are found, would result in a minor adverse

impact with a finding of no adverse effect on archeological resources in this area.

The roadbed of the Dayton, Springfield, and Urbana Interurban Rail Line is evident in some areas along the Marl Road corridor that visitors would use in Alternative B to enter the Huffman Prairie Flying Field area. In enhancing the transportation connection between the interpretive center and flying field, the National Park Service and U.S. Air Force would be careful to not disturb the remaining portions of this rail roadbed. As a result, the impacts on this historic archeological resource would be negligible.

The interpretation program in the area of the flying field would be expanded to explain to visitors that they were entering the site via the same route used by the Wright brothers. Restoring transportation along this historic corridor, coupled with interpretation of the rail line to visitors, would increase visitors' appreciation for this historic resource and the need to protect historic resources in general. However, the enhanced interpretation would not have any impact on the resource itself.

Alternative B would not include any earthmoving or excavation within Huffman Prairie Flying Field. As a result, there would be a negligible impact on archeological resources in this area.

With mitigation as described above, operation of the Alternative B facilities at the Wright Memorial and Huffman Prairie Flying Field areas would have a negligible to minor adverse impact on archeological resources. Individually and together, the project's actions would result in a finding of no adverse effect under Section 106 of the National Historic Preservation Act.

Cumulative Impacts

The cumulative impacts of Alternative B would be similar to those described for Alternative A.

Conclusions

Construction and operation of Alternative B would have a negligible to minor, adverse, long-term impact on prehistoric and historic archeological resources in the vicinity of The Wright Cycle Company complex, the Wright Memorial, and Huffman Prairie Flying Field. This alternative would not result in the impairment of archeological resources of Dayton Aviation Heritage National Historical Park.

ALTERNATIVE B IMPACTS ON HISTORIC STRUCTURES AND BUILDINGS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

In the vicinity of The Wright Cycle Company complex, the impacts of Alternative B on historic structures and buildings would be similar to those described for Alternative A. The new storage and maintenance facility that would be constructed within the expanded park boundary in this alternative would not require the removal of any existing historic buildings or structures, but would require archeological investigations. No additional stabilization, rehabilitation, or restoration activities would occur in ad-

dition to those associated with Alternative A.

By following the Secretary of the Interior's standards in rehabilitation and adaptive use of the house at 26 South Williams Street, there would be a long-term, direct, minor beneficial impact on this structure. The deterioration of the building would end, it would be rehabilitated to a useful condition, and continuing use would help maintain it in good condition.

Similar to Alternative A, this alternative would have negligible impacts on historic structures and buildings at the Wright Memorial and Huffman Prairie Flying Field.

Cumulative Impacts

Cumulative effects of Alternative B on historic structures and buildings would be similar to those described for Alternative A

Conclusions

Alternative B would have a negligible to minor, long-term, beneficial impact on historic structures and buildings in the vicinity of The Wright Cycle Company complex. Impacts at the Wright Memorial and Huffman Prairie Flying Field would be negligible. This alternative would not result in the impairment of historic structures and buildings at Dayton Aviation Heritage National Historical Park.

ALTERNATIVE B IMPACTS ON CULTURAL LANDSCAPES, INCLUDING URBAN QUALITY AND DESIGN OF THE BUILT ENVIRONMENT

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

The Wright Cycle Company Complex. Several actions that would be performed by the National Park Service at The Wright Cycle Company complex under Alternative B would directly affect the historic scene of the West Third Street Historic District. These actions and their direct impacts are examined individually and are then consolidated to identify an overall level of direct impact. Indirect impacts are considered below under "Cumulative Impacts."

Restoration of The Wright Cycle Company building would occur under any of the alternatives, including the alternative to continue current management. In addition, Alternative B would include the reconstruction of historically compatible outbuildings behind the cycle shop. Reproduction of the patterns and features of the backyard would occur in accordance with the Secretary of the Interior's standards for the treatment of cultural landscapes (The Secretary of the Interior 1995b).

The design, materials, massing, and scale of the reconstructed buildings would be based on historic evidence such as photographs, drawings, or archival documentation. Landscape features such as vegetation, fencing, or walks also would be soundly based on historical evidence. Because this is a National Historic Landmark, prior to final design, the plans for the new buildings and landscape changes would be made available to the Ohio State Historic Preservation Officer and appropriate local historic preservation agencies for review and comment. Using the impact thresholds in the methodology description for Alternative A, with the provisions outlined above, the reproduction of the backyard at the cycle shop

would have a minor, beneficial impact on the historic scene and built environment.

Within the backyard, interpretation would be expanded to explain the functions and importance of the outbuildings as part of the cultural landscape. This would not affect the cultural landscape itself, but would enhance visitors' understanding of the cultural landscape components and why they were important. Visitors may then be able to apply this understanding to cultural landscapes throughout The Wright Cycle Company complex, the West Third Street Historic District, and other historic communities in Dayton and throughout the nation.

The house at 26 South Williams Street currently is in general disrepair and is not used for any park or partner purposes. Under Alternative B, the building and landscaping would be rehabilitated in accordance with the Secretary of the Interior's treatment standards for historic properties, including historic buildings and cultural landscapes (The Secretary of the Interior 1995a, 1995b). This action would noticeably enhance the character of a contributing element in the national park and the historic district and would result in a moderate, beneficial impact on the historic scene and built environment.

The storage and maintenance facility that would be constructed within the expanded park boundary would be designed to match the character of the historic district. The new building would be designed to be visually unobtrusive in terms of scale and massing and would be carefully sited to minimize intrusion into the historic landscape and to blend with the surrounding buildings and landforms. While the new building would demonstrate a continuity of architectural style with the surrounding historic structures, the design would clearly illustrate that it was not just a duplicate of an older building. The colors, type, and texture of materials on the building exterior would be chosen carefully to harmonize with the surrounding National Historic Landmark and National Register districts, with special considerations for the surface quality, texture, reflection of light, spatial organization, and type of roof.

This new construction would comply with the city of Dayton preservation and development regulations. Preliminary designs would be provided for review by relevant city offices, including the preservation commission and architectural review board. Preliminary designs also would be made available to the Ohio State Historic Preservation Officer and concerned local historic preservation organizations for review and comment prior to final decisions about the building's appearance. As a result, the adverse impacts of implementing this alternative would be minor and would result in a finding of no adverse effect.

Cumulatively, these Alternative B actions at The Wright Cycle Company complex would have direct, minor impacts that were both beneficial and adverse in nature on the historic landscape of the complex. Because of the importance of this core area to the West Third Street Historic District, the cultural landscape of the entire district also would experience similar impacts.

Huffman Prairie Flying Field. Near the flying field, the U.S. Air Force and National Park Service would work together to protect the remnants of the Dayton, Springfield, and Urbana Interurban Rail Line. Although these landscape components are outside the flying field boundary, the actions would make a direct, minor, beneficial contribution to the cultural landscape of the vicinity.

Wright Memorial. Alternative B would include expanded parking and construction of a new road through the Wright Memorial from the parking lot near the interpretive center to the south end of the new bridge

over Ohio Highway 444. The new road would change the lawn-like character of the eastern third of this park. Depending on the siting of the parking lot, this feature also could intrude on the character of the landscape designed by the Olmsted brothers firm. The road and parking lot would have a direct, moderate, adverse impact on the cultural landscape of the Wright Memorial and would result in an adverse effect under Section 106 of the National Historic Preservation Act.

Alternative B would move the fence behind the interpretive center to the south and bury the steam lines that currently are close to the fence. Apparently, the fence and steam lines were part of the setting during the target period (1938 to 1944), and the Olmsted brothers firm's planting plan included vegetation along the fence to provide visual screening. Except for a few overgrown trees that no longer serve their original function, the Olmsted-designed screening vegetation no longer exists. The industrial appearance of this infrastructure complex was intrusive on the park's atmosphere both then and now.

Removal of the steam lines from the landscape by burying them would not remove a contributing element to the cultural landscape, but also would not improve the aesthetics because the new road would route visitors closer to other infrastructure. There would not be any need to remove the few remaining trees from the Olmsted design. Adverse impacts of this Alternative B component on the cultural landscape would be minor and would result in a finding of no adverse effect.

The new bridge from the Wright Memorial to the flying field would be highly visible from the ends of the east and north axes radiating from the memorial plaza. However, in communications with Wright-Patterson Air Force Base personnel, Eliot Foulds of the NPS Olmsted Center for Landscape Preservation (one of the primary authors of the cultural landscape documents for the Wright Memorial and Huffman Prairie Flying Field) indicated that in these views, the linear transportation features of the bridge would be consistent with the Olmsted philosophy of multimodal transit and would not diminish the Olmsted character (Ferguson and Perdue 2003). Therefore, adverse impacts of this Alternative B component on the cultural landscape would be minor and would result in a finding of no adverse effect.

Cumulative Impacts

Cumulative impacts of Alternative B on the cultural landscapes at The Wright Cycle Company complex and Huffman Prairie Flying Field would be similar to those described for Alternative A. At the Wright Memorial, improvements in the cultural landscape that were scheduled to occur before and after the centennial of flight would continue, but Alternative B would detract from their rehabilitation of the area.

Conclusions

Alternative B would have direct, minor, impacts that were both beneficial and adverse in nature on the historic landscape of The Wright Cycle Company complex and the entire West Third Street Historic District. At Huffman Prairie Flying Field, the direct, beneficial impact would be of minor intensity. Indirectly, this alternative would continue to contribute to the minor or moderate beneficial impacts on cultural landscapes that are occurring at both sites.

Construction of a new road and expanded parking would have a direct, adverse effect under Section 106 of the National Historic Preservation Act on the cultural landscape of the Wright Memorial. Other project-related features at and near this site would have a minor, adverse impact. Cumula-

tively, Alternative B would detract from other cultural landscape rehabilitation efforts in this area.

This alternative would not result in the impairment of cultural landscapes in Dayton Aviation Heritage National Historical Park.

ALTERNATIVE B IMPACTS ON ECONOMICS AND SOCIOECONOMICS, INCLUDING SOCIALLY OR ECONOMICALLY DISADVANTAGED POPULATIONS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Effects from Construction. Alternative B would involve construction totaling $16 million to $17 million. For a typical construction project, materials account for 75 percent to 80 percent of the cost, with the remainder paying for labor (Wood 2004). At this ratio, Alternative B would provide sales of $11.2 million to $12 million and would have the following effects:

- Maximum sales tax revenues (7.5 percent in Montgomery County) would total almost $1 million. These indirect beneficial effects would be minor because they would represent a one-time contribution of only about 0.004 percent of the state's total general revenues, 0.02 percent of Montgomery County's annual operating budget, and 0.08 percent of the annual budget for the Greater Dayton Regional Transit Authority.
- If ten percent of the total cost of materials was profit, construction related with Alternative B would produce sales-related profits (income) of up to $1.3 million. At an income tax rate of 2.25 percent in Dayton, the city would realize a one-time, minor, indirect, beneficial impact involving additional income tax revenues of about $30,000, about 0.03 percent of its general fund.
- There would not be any changes in property taxes, because all of the lands involved are owned by public entities, including the U.S. Air Force, Ohio Department of Transportation, and Miami Conservancy District.

These calculations assume that all of the effects would be in Montgomery County, even though Huffman Prairie Flying Field and the Wright Memorial are in Greene County. Most effects would be in this county because of the proximity of the bridge site to the county line and the convenience of making most purchases in Dayton. However, a small part of this revenue would accrue to Greene County, which would cause a small decrease in the beneficial effect in Montgomery County and provide a small revenue benefit in Greene County.

Labor for construction would cost $3.0 million to $4.0 million. Of this, about two-thirds would be paid directly to workers as salaries or wages. The remainder would be used by employers to pay for benefits such as health and other insurance, sick leave and annual leave, social security, and contributions to retirement programs. As a result, area income would increase by $2 million to $2.5 million. The intensity of this short-term, indirect, beneficial effect would be minor, based on the following calculations:

- At wages of $15 to $20 per hour, construction of the park facilities would require 100,000 to 180,000 labor

hours, or 50 to 85 jobs for a year. At a secondary job production rate of 30 percent (used in the MGM2 model, as indicated by Table 7 on page 140), construction associated with Alternative B would produce a total of 65 to 110 jobs for a year.

- At an income tax rate of 2.25 percent, Dayton would realize additional income tax revenues of about $60,000, about 0.08 percent of the city's general fund.

The combined construction labor force in Montgomery and Greene Counties is more than 13,100 people. If all of the Alternative B construction were completed within one year, it would require 0.5 to 0.8 percent of construction workers. This would have a short-term, direct, minor, beneficial effect on the construction labor force in the two counties, but extensive additional capacity would remain for other construction projects.

Long-Term Effects. Alternative B would include an additional $310,000 to $395,000 in operational costs per year compared to Alternative A. These costs would pay for the maintenance of the bridge and provide for maintenance and custodial and janitorial care at the storage and maintenance facility, hangar for the replica Wright B Flyer, and rehabilitated house at 26 South Williams Street. At a wage of $12 per hour, this would directly create about 10 jobs with 3 or 4 secondary jobs. The effect of this direct and indirect addition of up to 14 jobs to a labor market that includes more than 350,000 people would be long-term and beneficial but of negligible intensity. Aside from the creation of these jobs, Alternative B would have negligible changes compared to Alternative A in the areas of sales and income, tax revenues and demands for city services, neighborhood effects, and crime.

Environmental Justice. The environmental and public health effects of Alternative B near The Wright Cycle Company complex would be the same as those described for Alternative A. Alternative B would not have disproportionately high and adverse human health or environmental effects in the vicinity of The Wright Cycle Company complex.

Cumulative Impacts

Cumulative effects of Alternative B would be the same as those described for Alternative A.

Conclusions

Compared to the alternative to continue current management, Alternative B would have short-term, beneficial, direct and indirect effects of minor intensity related to the construction or rehabilitation of park facilities. Long-term social and economic effects of Alternative B would be negligible compared to Alternative A but would have the same major improvements to the neighborhood compared to current conditions that would occur with Alternative A. The environmental justice evaluation found that Alternative B would not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

ALTERNATIVE B IMPACTS ON LAND USE PLANS, POLICIES, OR CONTROLS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

In the vicinity of The Wright Cycle Company complex, Alternative B would have negligible effects on land use plans, policies, or controls. As in Alternative A, the NPS facilities would not only comply with land use plans, policies, and controls, but also would serve as an important contributor to the ability of the area to meet the plans, policies, and goals of the municipality and numerous organizations for the revitalization of the West Third Street corridor and surrounding residential neighborhoods.

At the sites within Wright-Patterson Air Force Base (Huffman Prairie Flying Field and the Wright Memorial), Alternative B would conform with most of the area's land use plans, policies, or controls. However, Alternative B components at the Wright Memorial and north of the proposed bridge over Ohio Highway 444 would result in conflicts with the base's endangered species management plan and wetlands management strategies. Both of these are included in the base Integrated Natural Resources Management Plan (Wright-Patterson Air Force Base 2001c).

Endangered Species Management Plan

The endangered species management plan is included as Section 6.0 of the base's Integrated Natural Resources Management Plan (Wright-Patterson Air Force Base 2001c). Alternative B would be consistent with most provisions of the endangered species management plan. However, some of the features of Alternative B would conflict with the plan's provisions for protecting the Indiana bat, eastern massasauga rattlesnake, and blazing star stem borer moth.

As noted in the footnote at the beginning of the "Affected Environment" section, the provisions contained in an approved Integrated Natural Resources Management Plan must be followed, and any deviation is a violation of the Sikes Act. Avoiding such violations would require amending the endangered species management plan in the next update of the base's Integrated Natural Resources Management Plan, which is scheduled for 2006. This action would require approvals within the U.S. Air Force and from numerous resource management agencies, including the U.S. Fish and Wildlife Service and the Ohio Department of Natural Resources.

Conflicts with Management Strategies for the Indiana Bat. Wright-Patterson Air Force Base management guidelines for the Indiana bat are intended to protect forested areas, particularly including the mature or overmature trees that could serve as maternity and roost trees for Indiana bats. The new bridge embankment and road from the Huffman Prairie Flying Field Interpretive Center to Marl Road could result in the removal of some trees that could serve this function, particularly in the woodlot in the Prime Base Engineer Emergency Force (BEEF) Training Area.

Based on the impact thresholds presented in the Alternative A methodology, conflicts with endangered species management plan provisions protecting the Indiana bat would represent a short-term, adverse, direct impact of moderate intensity. Although these conflicts would be challenging to resolve, negotiations between the U.S. Air Force, National Park Service, and U.S. Fish and Wildlife Service probably could develop an approach that would minimize the number of mature trees that had to be removed, provide a variance that would allow the transportation facilities to be built, and provide mitigation onsite and offsite to replace lost bat habitat.

Conflicts with Management Strategies for the Eastern Massasauga. The plan includes the following statement (with abbreviations in the plan spelled out for clarity):

> *In the past 20 years, reports of massasauga sightings have been limited to the Prime BEEF Training Area and Twin Base Golf Course in Area C of Wright-Patterson Air Force Base. Therefore, conservation measures and management for this species continues to focus on this general area of the base. To protect massasaugas and their habitat, Wright-Patterson Air Force Base has restricted new development, and other ground-disturbing activities within the Prime BEEF Training Area.*

Under the heading "6.5.3. Conservation Goals" the plan states that Wright-Patterson Air Force Base's goals for the eastern massasauga will be to:

> *maintain existing surface and ground water hydrology within the Prime BEEF Training Area.*

The plan also notes that crayfish burrows are important for providing hibernating habitat (hibernacula) for overwintering eastern massasaugas. Therefore, it is important to protect the conditions that contribute to the well-being of existing crayfish populations and create conditions that will promote crayfish. To that end, one of the goals for overwintering habitat for eastern massasaugas is:

> *to avoid all ground-disturbing activities within confirmed and potential hibernacula areas, and if unavoidable, schedule such activities at times when snakes are not likely to be present e.g., summer reproductive period.*

As described under the heading "Alternative B Impacts on Endangered, Threatened, and Other Special Status Species and their Habitats," this alternative would include construction of a bridge embankment and road through the eastern massasauga's primary habitat on the base within the Prime BEEF Training Area. Road and bridge embankment installation also could change the hydrology such that part of the area could be less suitable both for the snake and for the crayfish that provide overwintering habitat for the massasauga. In these aspects, Alternative B would be in conflict with the policies and controls included in the Wright-Patterson Air Force Base Integrated Natural Resources Management Plan's endangered species management plan.

Based on the impact thresholds presented in the Alternative A methodology, conflicts between the Alternative B bridge embankment and road in the Prime BEEF Training area and the base endangered species management plan provisions protecting the eastern massasauga would represent a long-term, adverse, direct impact of major intensity. The conflict probably could not be reconciled by negotiation and would result in a situation substantially out of compliance with land use plans, policies, and controls of the U.S. Air Force and U.S. Fish and Wildlife Service that were designed to protect this species.

In considering this conflict, it is important to recognize that this general management plan amendment identifies approaches based on outcomes for future park management and development but does not identify the precise locations for the features that would be constructed. Prior to installing major components such as Alternative B's transportation features between the Huffman Prairie Flying Field Interpretive Center and the flying field, a project-specific evaluation of impacts would be prepared to conform with the National Environmental Policy Act. During that investigation, the National Park Service would consider reasonable alternatives for accomplishing Alternative B's intent of connecting the interpretive center and flying field via a vehicle bridge. Because of the level of concern identified in this document, at least one of those alternatives would include a bridge configuration that did not conflict

with the U.S. Air Force's management approach to the eastern massasauga.

Conflicts with Management Strategies for the Blazing Star Stem Borer. To manage for the blazing star stem borer, the moth's food plant needs to be managed. Therefore, goals in the endangered species management plan for this species focus on the borer's food plant, *Liatris spicata* and other native *Liatris* species. Specific goals, which apply to the entire base, not just Huffman Prairie, are to:

- Manage habitat conditions to maintain or improve the abundance and spatial distribution of native *Liatris* species.
- Create conditions that will promote establishment of *Liatris* species in other suitable areas at the base.
- Maximize the buffer surrounding the prairie to limit encroachment from other land uses.

As described in the "Affected Environment" section, the 1998 base-wide survey of vegetation found most *Liatris* plants within Huffman Prairie but also noted the presence of a few *L. spicata* plants in fields near the prairie. These findings indicate that the potential for successfully expanding suitable habitat for the blazing star stem borer is high, particularly in areas hear Huffman Prairie Flying Field.

The conflict between endangered species management plan goals for the blazing star stem borer and the construction of the Alternative B transportation features near Huffman Prairie could represent a short-term, adverse, direct impact on land use plans, policies, or controls at Wright-Patterson Air Force Base. The intensity would be minor because the conflicts probably could readily be reconciled to the satisfaction of all parties. This could include mitigation measures such as working with The Nature Conservancy, U.S. Air Force, and others to better define the soil and hydrologic conditions that occur in the areas where *Liatris* plants have been found outside Huffman Prairie, identifying other area where those conditions currently occur or could be created, and managing those areas to encourage their colonization by *Liatris* plants.

Conflicts with Wetland Management Strategies

Wetland management strategies are included in Section 4.2 of the base's Integrated Natural Resources Management Plan (Wright-Patterson Air Force Base 2001c). As noted in the footnote at the beginning of the "Affected Environment" section, the provisions contained in an approved Integrated Natural Resources Management Plan must be followed, and any deviation is a violation of the Sikes Act. This can be avoided only by amending the wetland management strategies in the next update of the base's Integrated Natural Resources Management Plan, with appropriate approvals within and outside the U.S. Air Force.

Alternative B would be consistent with most provisions of the base's wetland management approaches. However, the road in Alternative B from the new bridge embankment north to Marl Road would conflict with strategies for Wetland 18C, which is the largest wetland on Wright-Patterson Air Force Base. The strategy for this area states that this wetland "will be protected from mechanized landclearing, earthmoving, and vehicle maneuvers."

Based on the impact thresholds presented in the Alternative A methodology, conflicts with the Integrated Natural Resources Management Plan strategy for protecting this wetland would represent a long-term, adverse, direct impact of moderate intensity. Although the conflict would be challenging to resolve, negotiations between the U.S. Air Force, National Park Service, and

U.S. Army Corps of Engineers probably could develop approaches, such as the following, that would allow construction through this area:

- A possible negotiated approach could involve the creation of new, replacement wetlands, which often include a ratio of at least two acres of new wetland for each acre of wetlands lost.
- The Integrated Natural Resources Management Plan identifies "other wet areas, which, at the time of the delineation survey, did not meet all wetland criteria." A negotiated approach could involve altering key characteristics of some of these sites, particularly larger sites, so that they could develop into jurisdictional wetlands.

Cumulative Impacts

The cumulative impacts of Alternative B would largely be similar to those described for Alternative A. However, as noted above, the transportation facilities included in Alternative B would result in conflicts with the Wright-Patterson Air Force Base endangered species management plan and wetland management strategies.

The National Park Service intends to maintain its spirit of cooperation that has made it welcome in the community as a partner and neighbor. Therefore, before the transportation elements of Alternative B were implemented, the National Park Service would ensure that the conflicts were resolved to the satisfaction of all parties.

Conclusions

In the vicinity of The Wright Cycle Company complex, Alternative B would have negligible effects on land use plans, policies, or controls. At the sites within Wright-Patterson Air Force Base, Alternative B could result in direct, adverse conflicts with the base's endangered species management plan, as follows:

- Conflicts with provisions protecting the Indiana bat would represent a short-term impact of moderate intensity. Although these conflicts would be challenging to resolve, negotiations probably would be successful in developing approaches that would allow the alternative to be implemented while protecting the bat and its habitat.
- Conflicts with provisions protecting the eastern massasauga rattlesnake would represent a long-term impact of major intensity that probably could not be reconciled by negotiation.
- Conflicts with provisions protecting the blazing star stem borer probably could readily be reconciled to the satisfaction of all parties. Therefore, they would represent a short-term impact of minor intensity.

The road segment between the bridge embankment and Marl Road would conflict with the Integrated Natural Resources Management Plan's wetland management strategies for Wetland 18C. This conflict would represent a long-term, adverse, direct impact of moderate intensity. Although these conflicts would be challenging to resolve, negotiations probably would be successful in developing approaches that would allow the road to be built while developing other areas to provide the lost wetland functions and values.

ALTERNATIVE B IMPACTS ON PARK AND PARTNER OPERATIONS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described

for the alternative to continue current management.

Analysis

Dedicated Storage and Maintenance Facility

Under Alternative B, the boundary of the park at The Wright Cycle Company complex would be expanded and a dedicated storage and maintenance facility would be constructed within the expanded boundary. The presence of this facility in the immediate vicinity of the historic buildings would enhance the NPS' ability to provide "A program of preventive and rehabilitative maintenance and preservation . . . to protect the physical integrity of facilities and preserve or maintain facilities in their optimum sustainable condition" (NPS 2000a)

Space within the storage and maintenance facility could be provided to park partners. These could include, but may not be limited to:

- Aviation Trail, Inc., which already has a property development and utilization agreement with the National Park Service for the Wright-Dunbar Interpretive Center and the Aviation Trail Visitor Center and Museum.
- The Ohio Historical Society, which may find it useful to share space and skills with the National Park Service in their maintenance of the nearby Paul Laurence Dunbar State Memorial.
- Wright Dunbar, Inc., which owns several contributing properties within the West Third Street Historic District.

Enhancements in the ability to maintain the park would be readily apparent to park staff. Visitors probably would be able to perceive improvements compared to conditions that would occur under Alternative A. At The Wright Cycle Company complex, the availability of a dedicated storage and maintenance facility would have long-term, indirect, beneficial effects of moderate intensity on park and partner operations. Minor beneficial effects could occur at the Paul Laurence Dunbar State Memorial.

The U.S. Air Force and Carillon Historical Park are not proximate to The Wright Cycle Company complex and already have storage and maintenance facilities. The Alternative B storage and maintenance facility would have negligible effects on the operations of these park partners.

Space for Partners at The Wright Cycle Company Complex

Alternative B would include the rehabilitation of the house at 26 South Williams Street and its adaptive use for NPS and/or partner administrative and other purposes. The larger rooms could be used for meetings or community functions.

The availability of this space would provide organizational flexibility to meet future needs and could be a valuable aid in helping to support and strengthen park partnerships. Although the availability of space in this building would have a long-term, indirect, beneficial effect, the intensity would be minor.

Staffing

Alternative B would include hiring four additional NPS staff members to provide interpretation and outreach services. Increasing the NPS staff for the park by approximately 20 percent would have a long-term, direct, beneficial effect of moderate intensity on the NPS' ability to operate Dayton Aviation Heritage National Historical Park.

Continued Runway Operations

The bridge across Ohio Highway 444 that would be constructed as part of Alternative B would be just south of the line of flight for aircraft taking off from and landing at Wright-Patterson Air Force Base. Base security has expressed concern that the bridge may be attractive to terrorists as a location from which to launch a weapon, such as a shoulder-fired missile, at an aircraft.

A terrorist attack is a realistic concern. However, there already are many other locations in the area that may be similarly appealing. Elevated sites could include the Wright Memorial and Huffman Dam. Terrorists could place themselves directly under the flight path by stopping on Ohio Highway 444 or entering the base at Gate 16A and driving on Prairie Road into the clear zone at the end of the runway. Moreover, the bridge design would include security measures that would make it less attractive as a launch site. While the bridge may represent a long-term, adverse, indirect threat to runway security, the increased threat would be minor compared to the condition that already would exist under Alternative A.

Training in the Prime Base Engineer Emergency Force (BEEF) Training Area

As described in the "Affected Environment" section, visitor activities cannot occur with 400 feet of munitions training in the Prime BEEF Training Area. The bridge and new roadway would pass through the western corner of this area, while most munitions training occurs farther east. No limitations would be placed on the Prime BEEF Training Area because of the presence of visitors on the bridge and road and the impact would be negligible.

Base Security

Building the bridge over Ohio Highway 444 would require considerable construction within the boundaries of Wright-Patterson Air Force Base. A labor force of perhaps 50 or 100 people would be needed for construction and numerous loads of materials and supplies would be trucked into the work area on the north side of the bridge. Although this area is separated from the main part of Wright-Patterson Air Force Base by security fences and has a lower level of concern than base areas to the east, the U.S. Air Force would need to implement additional security measures for a year or more during construction. The short-term requirement for increased security would have an indirect, adverse effect of moderate intensity on U.S. Air Force operations.

After the bridge was completed, visitors would enter and exit the Huffman Prairie Flying Field area via the bridge and the Marl Road alignment. Although Alternative B would not include any changes in fencing in the area of the flying field, few visitors would be aware of the presence of the horse barns and golf course to the east and would be less likely to leave the flying field area to visit these facilities than in Alternative A. Moreover, the U.S. Air Force could post signs prohibiting visitor use on roads leading away from the flying field.

Changing the route of visitor access to the flying field area may have a beneficial effect on base security, but the intensity would be negligible. While visitors would no longer be routed past unauthorized facilities and may have a reduced tendency to wander into these areas, they could still access these sites. As a result, the entire area would still have to be swept to clear out visitors who may have left the flying field area on unsecured roads.

Alternative B would close Gate 16A to visitor access but would create a new gate into Wright-Patterson Air Force Base associated with the bridge. The effect of closing one gate and opening another on base security would be negligible.

Staff Transit between the Flying Field and Interpretive Center

Alternative B would reduce the time of travel between Huffman Prairie Flying Field and the interpretive center for NPS staff. By using the bridge, staff could complete the trip between the sites in five minutes, compared to the 15 minutes required in Alternative A. The intensity of this long-term, indirect, beneficial effect would be minor.

Transporting the Replica Wright B Flyer

During the summer display season, the replica Wright B Flyer would be housed in a new hangar near the flying field. Use of the new hangar would eliminate crossing the Wright-Patterson Air Force Base flight line and the need to coordinate with U.S. Air Force operations personnel each time the replica Wright B Flyer was moved to or from Huffman Prairie Flying Field. Also, members of the organization that owns the plane, Wright "B" Flyer, Inc., could move the aircraft from the hangar to the display site without the presence of NPS staff. Compared to Alternative A, the long-term, indirect, beneficial effect would be of moderate intensity to operations of the National Park Service and U.S. Air Force.

Maintenance of New Facilities

The cost of maintaining the bridge would be about $50,000 per year. This would represent about three percent of the current annual budget of the National Park Service for Dayton Aviation Heritage National Historical Park or the approximate equivalent of one staff position. Because the work would have to be contracted out, additional staff time would be required for support activities such as contracting and inspections. The result would be a moderate, adverse, long-term, indirect effect on a park that has only 16 full-time equivalent, nine part-time, and four temporary employees.

Maintenance of the storage and maintenance facility within The Wright Cycle Company complex would have a minor, adverse, long-term, indirect effect on NPS operations. This building would be in constant use by the park's maintenance staff, who would be inclined to observe and fix problems before they developed into larger, more expensive concerns. A reserve for replacement fee was calculated into the costs in Table 3 to address major costs such as roof replacement, although such expenses would not be anticipated within the 20-year timeframe of this general management plan amendment.

A minor, long-term, adverse, indirect effect also would be associated with maintenance of the hangar for the replica Wright B Flyer. The location of this building near Huffman Prairie Flying Field would make it less convenient to maintain than the facility at The Wright Cycle Company complex, but it would be a simpler structure without plumbing or heating systems to maintain.

The U.S. Air Force would continue to maintain the roads used by visitors on the base. Compared to Alternative A, the distance driven on the base by each visitor would decrease, as most visitors would park at the interpretive center and take a shuttle to the flying field. Even during low-use periods when visitors would be allowed to drive their private vehicles across the bridge, they would drive shorter distances on base roads than would occur using Alternative A's circuitous route. As a result, the accumulated wear on base roads from

park visitation would decrease compared to Alternative A. However, this long-term, beneficial effect on Air Force maintenance requirements would be negligible, particularly when compared to the road wear that occurs from the 20,000 base employees who drive within the installation on a daily basis.

The expanded parking associated with this alternative at the Wright Memorial would require little maintenance. Costs for maintaining this facility would not be noticeable or measurable within the normal variability of the NPS' annual operating budget and would have a negligible effect on operations.

Cumulative Impacts

Cumulative effects would be the same as those described for Alternative A.

Conclusions

The effects on park and partner operations from implementing Alternative B are summarized as follows:

- Dedicated storage and maintenance facility: long-term, indirect, beneficial effects of moderate intensity.
- Space for partners at The Wright Cycle Company complex: long-term, indirect, beneficial effects of minor intensity.
- Increasing the NPS staff: long-term, direct, beneficial effect of moderate intensity.
- Effect of bridge on runway security: long-term, indirect, adverse effect of minor intensity.
- Training in the Prime BEEF Area: negligible effects.
- Security during bridge construction: short-term, indirect, adverse effect of moderate intensity.
- Changing the route of visitor access to the flying field on security: long-term, indirect, beneficial effect of negligible intensity.
- Staff transit between the flying field and interpretive center: long-term, indirect, beneficial effect of minor intensity.
- Transporting the replica Wright B Flyer: long-term, indirect, beneficial effect of moderate intensity to the National Park Service and U.S. Air Force.
- Maintenance of new facilities: long-term, indirect, adverse effect of moderate intensity for the new bridge and minor intensity for the two new buildings. Effects of maintaining roads and expanded parking would be negligible.

ALTERNATIVE B IMPACTS ON PUBLIC HEALTH AND SAFETY

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Traffic Safety near The Wright Cycle Company Complex

As part of Alternative B, the National Park Service and its partners, particularly the city of Dayton and Wright Dunbar, Inc., would implement traffic management procedures that would direct visitors driving vehicles away from South Williams Street

and into other areas. This could be done by, for example, changing NPS maps and directional instructions for the sites in west Dayton to emphasize the locations of free parking in the vicinity of The Wright Cycle Company complex. Drivers would then tend to target one of the parking areas rather than the cycle shop as their driving destination. Signs directing visitors to parking lots also could be posted on West Third Street.

Burgess & Niple, Limited (2002) identified parking for almost 200 vehicles in three lots and two areas of on-street parking within a block of The Wright Cycle Company complex. None of these areas would involve driving on South Williams Street. Directing drivers to these lots would disperse traffic and keep most visitors' vehicles away from areas of heavy pedestrian use. Compared to Alternative A, this would have a long-term, indirect, beneficial effect of minor intensity on traffic safety. It would not produce adverse effects on the area's minority populations and low-income populations that would be measurably different from those sustained by other population groups.

Traffic Safety near the Wright Memorial and Huffman Prairie Flying Field

Visitors to the park's Wright-Patterson Air Force Base sites would use the new bridge to travel from the interpretive center at the Wright Memorial to Huffman Prairie Flying Field and back. On a peak-season weekend, this would reduce daily traffic on Ohio Highway 444 between Kauffman Avenue and Gate 16A by about 880 one-way vehicle trips. Annually, about 160,000 one-way trips through the intersection would be eliminated.

Compared to Alternative A, the presence of the bridge would eliminate one accident on Ohio Highway 444 at its intersections of Kauffman Avenue and Gate 16A every 1.75 years and one injury accident every seven years. This long-term, indirect, beneficial effect of the park on public safety would not be detectable within historical norms and would have a negligible intensity.

Safety Risks Represented by Military Operations

Safety risks represented by military operations would be the same as those described for Alternative A and would have a negligible effect on the public.

Emergency Response

Alternative B would not change emergency response at The Wright Cycle Company complex or the Wright Memorial and would have a negligible effect on this aspect of public health and safety at these sites.

With the closure of Gate 16A, emergency responders traveling from the Wright-Patterson Air Force Base flight line would have to access Huffman Prairie Flying Field either by unlocking internal gates or by traveling on Ohio Highway 444 to the Wright Memorial and then crossing the new bridge to the flying field. Either route would increase the response time by about five minutes (about 50 percent). Fortunately, the need for emergency services in the Huffman Prairie Flying Field area is uncommon, and the long-term, indirect, adverse effect on public health and safety would be of minor intensity.

Alternative B would include additional parking at the Wright Memorial. As a result, visitors during busy periods (such as weekend days suitable for sledding) would have less need to park their vehicles along the park road and block access for emergency responders. This would result in a

long-term, indirect, beneficial, minor effect on public health and safety.

Cumulative Impacts

Cumulative effects of Alternative B on public health and safety would be the same as those described for Alternative A.

Conclusions

At The Wright Cycle Company complex, dispersing traffic away from areas of heavy pedestrian use would have a long-term, indirect, beneficial effect of minor intensity. It would not produce adverse effects on the area's minority populations and low-income populations that would be measurably different from those sustained by other population groups.

The longer response time for emergencies at Huffman Prairie Flying Field would have a long-term, indirect, adverse, minor effect on public health and safety in this area. The availability of additional parking at the Wright Memorial would improve emergency access during busy days and have a long-term, indirect, beneficial, minor effect on public health and safety. All other effects on public health and safety would have a negligible intensity.

ALTERNATIVE B IMPACTS ON TRANSPORTATION

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Number of Trips

As described in the analysis of public health and safety, the National Park Service and its partners would implement measures to divert visitor drivers to parking lots throughout the area and reduce their tendency to turn onto South Williams Street. Compared to Alternative A, this would have long-term, beneficial, indirect effects of moderate intensity on South Williams Street and long-term, adverse, indirect effects of minor intensity on the other secondary streets in the area that would receive the diverted traffic.

Park-related traffic effects on West Third Street and on Ohio Highway 444 would be the same as Alternative A.

Levels of Service

Effects on levels of service for the intersection of West Third Street and South Williams Street would be the same as those described in Alternative A.

Burgess & Niple, Limited (2002) did not calculate levels of service for the intersection of Ohio Highway 444 and Kauffman Avenue for Alternative B. However, they can be generally estimated from the Alternative A conditions in Table 25.

The bridge from the Wright Memorial to Huffman Prairie Flying Field would eliminate the northbound right turns that park visitors currently make to travel from the interpretive center to Gate 16A. Because this lane under Alternative A would have a level of service ranking of A, no improvement would be possible from eliminating some of these turns and the effect would be negligible.

Many visitors under Alternative A would return to Dayton on Ohio Highway 444 af-

ter exiting from Huffman Prairie Flying Field at Gate 16A. With Alternative B, these visitors would make a northbound left turn from Kauffman Avenue onto Ohio Highway 444. This lane under Alternative A would have a level of service ranking of B, moderate traffic. The additional northbound left turn traffic resulting from Alternative B probably would not be sufficient to change the level of service during rush hour and would produce a long-term, adverse, indirect, minor effect in this lane.

Availability of Parking

The Wright Cycle Company Complex. The effects of Alternative B on parking in the vicinity of The Wright Cycle Company complex would be the same as Alternative A.

Wright Memorial. Alternative B would expand parking to provide up to 80 parking spaces at the Wright Memorial. This would accommodate the requirement for 75 parking spaces that was calculated for Alternative A. However, visitors would be parking in this area for a longer time as they took the shuttle across the bridge to visit Huffman Prairie Flying Field. Therefore, parking probably would be inadequate on peak-season weekends. The effects of the insufficient parking are discussed later in this section under visitor use and experience.

Huffman Prairie Flying Field. Most visitors would take the shuttle from the Wright Memorial to Huffman Prairie Flying Field and would not need parking at the flying field. Only during very slow visitation periods when visitors would be allowed to drive their vehicles across the bridge would the existing parking at the flying field be needed. Therefore, the existing parking would be adequate. The effects of the adequate parking are discussed later in this section under visitor use and experience.

Cumulative Impacts

Cumulative impacts of Alternative B would be the same as Alternative A.

Conclusions

Compared to Alternative A, this alternative would have long-term, beneficial, indirect effects of moderate intensity on South Williams Street and long-term, adverse, indirect effects of minor intensity on the other secondary streets in the area. A long-term, adverse, indirect, minor effect on level of service would occur for traffic turning left from Kauffman Avenue onto Ohio Highway 444. Regarding parking, there would be a long-term, direct, beneficial effect of minor intensity at the Wright Memorial and a long-term, direct, beneficial effect of moderate intensity at Huffman Prairie Flying Field.

ALTERNATIVE B IMPACTS ON VISITOR USE AND EXPERIENCE

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Adequate Visitor Amenities. Alternative B would improve the availability of parking at the Wright Memorial compared to Alternative A. However, parking probably would remain inadequate on many peak-season weekends by 2025. As with Alternative A, the National Park Service would work with partners to develop an alternate approach, such as a shuttle service, for transporting visitors from an overflow park-

ing lot or from locations around the metropolitan area to this facility. Because Alternative B already would use a shuttle to move visitors between the Wright Memorial and Huffman Prairie Flying Field, expanded use of a shuttle to address the insufficient parking would be consistent with the character of this alternative. The long-term, direct and indirect, beneficial effects on the visitor experience compared to Alternative A would be minor to moderate.

Except during low use periods, visitors would be required to park their vehicles at the Wright Memorial and take a shuttle to Huffman Prairie Flying Field. As a result, the existing, 25-vehicle parking lot at the flying field would seldom be used by private vehicles, and use would not be expected to exceed the capacity. As an added benefit, visitors could get on and off the shuttle at several sites around the flying field. Particularly for visitors with limited mobility, this would provide the ability to experience more of the site than if they had to walk to and from their cars in a parking lot. The long-term, direct and indirect, beneficial effects on the visitor experience would be moderate.

Portable toilets would be available at Huffman Prairie Flying Field from April through October, and full-service restrooms could be accessed fairly quickly by traveling across the bridge to the interpretive center. Compared to Alternative A, the long-term, direct and indirect effects of these visitor amenities on visitor use and experience would be beneficial and of minor intensity.

Additional Visitor Programming. Alternative B would include additional visitor programming at the Wright Memorial and on the shuttle trip from the Wright Memorial to the flying field. Visitors would become aware that the Marl Road corridor they were following was the Wright brothers' route to the site. At Huffman Prairie Flying Field, there would be an increased ability to display the replica Wright B Flyer, which would be housed in a nearly hangar. The long-term, direct and indirect, beneficial effects on visitor programming would be of minor intensity.

Community Outreach. Most aspects of community outreach would be the same as those occurring with Alternative A. However, eliminating the public access to the Wright-Dunbar Interpretive Center from West Third street would reduce community access into the facility. This would produce long-term, direct and indirect, adverse effects of minor intensity on community outreach.

Continuity of Experience. The direct connection via the bridge would enable the National Park Service to coordinate activities at the Wright Memorial and Huffman Prairie Flying Field and provide a continuous visitor experience between the two sites. The long-term, direct and indirect, beneficial effects on the visitor experience would be of moderate intensity.

Ease of Visitor Access. Visitors would find it simpler to travel between the interpretive center and Huffman Prairie Flying Field via the new bridge than taking Alternative A's circuitous route that involves travel on Ohio Highway 444 and use of Gate 16A. However, taken in the larger context of wayfinding among all of the park units, or driving from other cities or states just to get to the park, the long-term, direct, beneficial effect would be of minor intensity.

Maintaining a Consistently High-Quality Visitor Experience. The use of indicators and standards to maintain the quality of the visitor experience, with the associated implementation of monitoring activities and management actions, would enable the National Park Service to reduce the adverse effects that, in Alternative A, would be associated with increasing visitation.

It may eventually be appropriate to use a reservation system or program of guaranteed entrance at a later time for entire sites, such as Huffman Prairie Flying Field, or facilities within sites, such as The Wright Cycle Company building at The Wright Cycle Company complex. These approaches would ensure the availability of resources and programs for visitors, and reduce the frustration of being denied access.

The planned capacity for the parking lot at the Wright Memorial (30 vehicles) may not be sufficient to provided parking to all visitors in the year 2025. The National Park Service would use monitoring to identify when demand would exceed existing carrying capacity. When thresholds were approached, the National Park Service would implement appropriate actions, such as coordinating with others to provide a shuttle service from offsite parking during busy periods or expanding the parking lot incrementally to help meet demands. This would ensure that ample access to the Wright Memorial was available.

At Huffman Prairie Flying Field and on the grounds of the Wright Memorial, monitoring would be used to identify areas of concern related to overuse, particularly in the Historic Landscape zone. Redirecting visitors from areas where social trails are developing or hardening selected social trails would improve the visual quality of the resource for visitors.

The effects of using carrying capacity to monitor and maintain the quality of the visitor experience would be long-term and beneficial. Perceptions would vary by individual, but usually would be seen as minor or moderate compared to Alternative A.

Effects on the Character of the Park. At The Wright Cycle Company complex, the new storage and maintenance facility within the park boundaries would be visually evident to park users. Despite its design to match the 1890s character of the neighborhood, some visitors may perceive it as intrusive. The new bridge would be highly visible from the overlooks at the Wright Memorial and may intrude on the character of the trip to the flying field for visitors who recognized that the Wright brothers did not enter the site via a flyover bridge. At all three sites, the long-term, direct and indirect, adverse effects on the character of the park would be minor.

Eliminating staff use of the second floor of The Wright Cycle Company building would eliminate a distraction to visitors. This would have a long-term, direct, beneficial, minor effect on the visitor experience.

Cumulative Impacts

Cumulative impacts of Alternative B would be the same as Alternative A.

Conclusions

Compared to Alternative A, improved continuity of the visitor experience between the Wright Memorial and Huffman Prairie Flying Field would have a long-term, direct and indirect, beneficial effects of moderate intensity.

Long-term, direct and indirect, beneficial effects of minor or moderate intensity would be associated with increased parking at the Wright Memorial and reduced need for parking because of the use of shuttles; improved access to toilets from Huffman Prairie Flying Field; additional visitor programming at the Wright Memorial, Huffman Prairie Flying Field, and the trip between; easier visitor access between these sites; the use of carrying capacities to ensure the quality of visitor experiences, and reduced distraction associated with changes in NPS use of The Wright Cycle Company building.

Long-term, direct and indirect, adverse effects of minor intensity would occur on community outreach at The Wright Cycle Company complex, and from the intrusion of new facilities, including the bridge and storage and maintenance facility, on the park character.

ALTERNATIVE B SUSTAINABILITY AND LONG-TERM MANAGEMENT

The Relationship between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

The intent of this determination is to identify whether Alternative B would result in trading the immediate use of the land for any long-term management possibilities or the productivity of park resources that would affect future generations. It is intended to determine whether Alternative B would be a sustainable action that could continue over the long-term without environmental problems.

Alternative B would be a sustainable action that would not change the use of Dayton Aviation Heritage National Historical Park or affect the long-term productivity of lands affected by its operation for future generations.

Any Irreversible or Irretrievable Commitments of Resources which Would Be Involved Should the Alternative Be Implemented

The intent of this evaluation is to identify whether this alternative would result in effects that could not be changed over the long term or would be permanent. An effect on a resource would be irreversible if the resource could not be reclaimed, restored, or otherwise returned to its condition before the disturbance. An irretrievable commitment of resources involves the effects on resources that, once gone, cannot be replaced or recovered.

Alternative B would not involve the irreversible or irretrievable commitment of resources. No resources would experience major adverse impacts that could not be mitigated and no impairment of park resources would occur as a result of this alternative. For example:

- Replacement wetlands could be created to replace the wetland areas that were filled to build the new road from the bridge to Marl Road.
- While it is unlikely to occur, the bridge from the Wright Memorial to Huffman Prairie Flying Field could be demolished and the lands on which it stood could be returned to their current undeveloped condition.

Any Adverse Impacts which Cannot Be Avoided Should the Action Be Implemented

The intent of this determination is to identify whether this alternative would result in impacts that could not be fully mitigated or avoided. The focus of this assessment is on real environmental issues that would involve major impacts if action was taken.

As described in the analysis of effects on endangered or threatened species and their habitats, construction of the bridge embankment would have moderate to major, adverse effects on the eastern massasauga rattlesnake and its habitat in Wright-Patterson Air Force Base. Consultation with the U.S. Fish and Wildlife Service would be required to determine if reductions in habitat area and quality associated with Alternative B could change the vitality of this population such that the continued existence of this population could be affected.

None of the other environmental effects identified in this assessment of Alternative

B would result in major adverse impacts that could not be mitigated or avoided. The implementation of this alternative for managing The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial would not result in impairment of any resources that would affect the basic purpose of Dayton Aviation Heritage National Historical Park.

ENVIRONMENTAL IMPACTS OF ALTERNATIVE C

ALTERNATIVE C IMPACTS ON ENDANGERED, THREATENED, AND OTHER SPECIAL STATUS SPECIES AND THEIR HABITATS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Compared to Alternative A, Alternative C would have negligible effects under the National Environmental Policy Act on endangered, threatened, and other special status species and their habitats in the vicinity of The Wright Cycle Company complex. This area is heavily urbanized and all such species were removed when the area was developed more than 130 years ago. Under the Endangered Species Act, Alternative C would result in no effect / no adverse modification in this area.

As discussed in the "Affected Environment" section, the Wright-Patterson Air Force Base (2001c) endangered species management plan addresses five species of concern in the vicinity of features on or near this Air Force installation that could be affected by Alternative C. Effects of Alternative C on each of these species are presented below.

Indiana Bat

Alternative C would involve a relatively small amount of construction within or near the area designated as primary habitat for the Indiana bat at Wright-Patterson Air Force Base. Effects associated with this construction would include the following:

- Alternative C would more than double the parking capacity at the Wright Memorial, from the current 46 spaces to 100. With careful design, this probably could be accomplished with the removal of few, if any, mature trees that could be suitable now or in the future for roosting uses by Indiana bats. There would be negligible effects on bat maternity areas because the pines that may have to be removed typically are not used by the Indiana bat as maternity sites.
- Alternative C would include approximately 500 feet of new road extending north from the intersection of Kauffman Avenue and Ohio Highway 444 to Marl Road on land owned by the Miami Conservancy District. The road would be built on a long-existing dirt track evident in pre-1978 photography in the Greene County soil survey (Garner *et al*. 1978) and in recent U.S. Geographical Survey aerial photography available on the Internet. This alignment is in an area of old field vegetation with a few shrubs or young trees on the east side. As a result, the new road would not require the removal of any trees suited for Indiana bat roosting or maternity uses.
- A new hangar for the replica Wright B Flyer would be constructed near Huffman Prairie Flying Field, possibly at the former site of the Combat Arms Training and Maintenance facility. As described in Alternative B, effects on the bat at this site would be negligible.

Short-term effects on the Indiana bat from construction of the parking lot and road would be negligible. Few trees would need

to be removed, and any such activities probably would be conducted during the winter, when bats were not present. Cutting of suitable trees would not occur during the spring and summer unless mist net surveys performed by qualified wildlife biologists establish that bats are not present.

Decreases in habitat from tree removal could have a long-term, adverse, indirect effect on Indiana bat populations within two miles of the Wright Memorial and Huffman Prairie Flying Field. However, the intensity would be negligible when compared to the alternative to continue current management because of the very small number of trees involved and because many of these trees are pines, which are not favored by the Indiana bat. While tree removal associated with Alternative C may affect individual bats, it would not affect the distribution or viability of the Indiana bat population or the ability of the habitat to continue to support this species of concern.

Using the Endangered Species Act criteria, effects on the Indiana bat would be categorized as no effect / no adverse modification.

Bald Eagle

The effects of Alternative C on the bald eagle would be similar to those described for Alternative B. Short-term construction effects on the bald eagle would be negligible. Adverse, indirect, long-term effects may occur, but they would be of negligible intensity. Using the Endangered Species Act criteria, effects on the bald eagle would be categorized as no effect / no adverse modification.

Eastern Massasauga Rattlesnake

Alternative C would not include any construction within the Prime Base Engineer Emergency Force (BEEF) Training Area or golf course, which have been designated as primary habitat for the eastern massasauga.

Outside the base just west of the Prime BEEF Training Area, the alignment of the 500 feet of new road currently is a dirt track that primarily is bordered on both sides by old field vegetation. The grasslands provide poor-quality habitat for massasaugas. Bands of trees extend to this track on both the north and south boundaries of this plot. These bands of trees are continuous with the woodlot in the Prime BEEF Training Area and may support a few individuals of the same population of massasaugas. However, construction of the new road probably could be completed with minimal disturbance of the wooded areas. Therefore, although short- and long-term, direct and indirect, adverse impacts on this small rattlesnake could occur from the construction of the new road in this area, the intensity would be negligible. Using the Endangered Species Act criteria, effects on the eastern massasauga would be categorized as no effect / no adverse modification.

Clubshell

Effects on the clubshell, which probably has been extirpated from the Mad River and its tributaries, would be the same as those described for Alternative B. As with that alternative, Alternative C would include implementation of an erosion control plan to prevent sedimentation of area waterways so that potential mussel habitat will be available now and in the future. Under the Endangered Species Act, Alternative C would result in no effect / no adverse modification for this species.

Blazing Star Stem Borer

Effects of Alternative C on the blazing star stem borer would be negligible. The grassy areas on both sides of the proposed road alignment are periodically mowed, which

suppresses the development of *Liatris* plants and the blazing star stem borer they support. Therefore, this small moth probably does not occur within the area that would be disturbed by road construction.

Cumulative Impacts

As described in Alternative A, the special status species considered in this environmental impact statement are in situations of concern primarily because of human actions that resulted in the loss of habitat. Actions leading to the decline of species, such as urbanization, conversion of lands to agricultural purposes, and discharge of pollutants to waterways, will continue regardless of management actions taken by the National Park Service and will increase the environmental stresses on these and other species. Similarly, beneficial actions to restore species, both locally and regionally, will continue.

The cumulative effects of Alternative C on all five special concern species addressed in the Wright-Patterson Air Force Base endangered species management plan would be negligible. Reasons for these intensity levels for the Indiana bat, bald eagle, clubshell, and blazing star stem borer would be similar to those described for Alternative B, recognizing that Alternative C would have lesser amounts of construction, and therefore lesser impacts, than Alternative B. The construction of 500 feet of new road on the edge of the eastern massasauga habitat would not affect the distribution or viability of the population or the ability of the habitat on nearby Wright-Patterson Air Force Base to continue to support this species.

Conclusions

Compared to Alternative A, Alternative C would have negligible effects under the National Environmental Policy Act on endangered, threatened, and other special status species and their habitats in the vicinity of The Wright Cycle Company complex. Under the Endangered Species Act, Alternative C would result in no effect / no adverse modification in this area. At the sites within or near Wright-Patterson Air Force Base, Alternative C would have the following effects:

- **Indiana Bat.** The short-term, construction-related impacts of Alternative C would be negligible. Cutting of some potential roost trees as part of this alternative would reduce the availability of summer habitat locally, but the long-term, adverse, indirect effect on Indiana bat populations would be of negligible intensity. Under the Endangered Species Act, Alternative C would be classified as no effect / no adverse modification.
- **Bald Eagle.** Short-term construction effects on the bald eagle would be negligible. Alternative C could have an adverse, indirect, long-term effect on bald eagle populations but the intensity would be negligible. Using the Endangered Species Act criteria, effects on the bald eagle would be categorized as no effect / no adverse modification.
- **Eastern Massasauga Rattlesnake.** Alternative C would have short- and long-term, adverse, direct and indirect, negligible effects on the area's eastern massasauga population. Under the Endangered Species Act, Alternative C would be classified as no effect / no adverse modification.
- **Clubshell.** The clubshell mussel probably has been extirpated from the Mad River and its tributaries in Wright-Patterson Air Force Base. Therefore, actions associated with Alternative C would have a negligible effect on this endangered species. Under the Endangered Species Act, Alternative C would result in no effect / no adverse modification for this species.

- **Blazing Star Stem Borer.** The plants that support the blazing star stem borer in its egg and immature life stages probably are absent or suppressed throughout the alignment for the proposed Alternative C roadway. Therefore, actions associated with Alternative C would have a negligible effect on this species.

The cumulative effects on these species would be negligible. Alternative C would not result in the impairment of endangered, threatened, and other special status species and their habitats in Dayton Aviation Heritage National Historical Park.

ALTERNATIVE C IMPACTS ON NATIVE VEGETATION, INCLUDING ECOLOGICALLY CRITICAL AREAS OR UNIQUE NATURAL RESOURCES

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Effects of Alternative C on native vegetation, including ecologically critical areas or unique natural resources, from implementing Alternative C would be negligible throughout Dayton Aviation Heritage National Historical Park and nearby areas for the following reasons:

- The Wright Cycle Company complex does not include areas of native vegetation.
- Features of this alternative would avoid Huffman Prairie.
- There would not be any modification of native vegetation during construction of expanded parking areas at the Wright Memorial. Most of the plantings could be avoided and plantings in disturbed areas would be replaced.

Most effects on native vegetation would be negligible at Huffman Prairie Flying Field for the reasons described for Alternative B. Alternative C would expand existing parking in this area by up to 35 spaces, which would pave about a quarter-acre of vegetation. However, there are many areas of non-native grasses in the area, and a siting study would be conducted to ensure that a suitable site was chosen that would have negligible effects on native vegetation.

New transportation facilities north of Ohio Highway 444 would be limited to about 500 feet of new road from the intersection with Kauffman Avenue to Marl Road. This new road, which is outside Wright-Patterson Air Force Base, would follow the alignment of a long-existing dirt track evident in pre-1978 photography in the Greene County soil survey (Garner *et al*. 1978) and in recent U.S. Geographical Survey aerial photography available on the Internet.

The total area of construction disturbance for the connecting road would be about an acre. Most of the new disturbance could be located in old field vegetation that predominates on both sides of the existing dirt track. About 0.6 acre would be permanently converted to road surface and right-of-way, but much of this area currently supports little vegetation. The effects on native vegetation in this area would be adverse and direct. However, based on the impact thresholds in the methodology description in Alternative A, the intensity of the short-term construction and long-term operational impacts of the road on native vegetation would be negligible.

Cumulative Impacts

Cumulative impacts on native vegetation would be similar to those described for the alternative to continue current management. Although Alternative C would permanently remove vegetative cover from a 500-foot-length of new road surface and expanded parking areas, it would not alter trends toward restoring native vegetation in selected areas on Wright-Patterson Air Force Base, along the river corridors, and throughout the region.

Conclusions

Alternative C would have negligible effects on native vegetation at The Wright Cycle Company complex, Huffman Prairie, Huffman Prairie Flying Field, the Wright Memorial, and areas that would be disturbed by construction of a road from Kauffman Avenue to Marl Road. This alternative would not result in the impairment of native vegetation, including ecologically critical areas or unique natural resources.

ALTERNATIVE C IMPACTS ON SOILS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

At The Wright Cycle Company complex, Alternative C would involve the construction by others of a new storage and maintenance facility outside the existing park boundary. This would result in a relatively small area of disturbance (less than the typical lot size of 8,000 square feet) on a flat grade. The construction-related impacts on soils in this area would be direct and adverse. The entity that built the facility would have to apply the same types of best management practices for soils that would be required of the National Park Service. Because of the effectiveness of these techniques and the small area involved, the intensity of the short-term impacts would be minor. A protective vegetation cover and/or paving of surfaces to provide parking would be installed after construction was completed and would protect the soils so that the long-term effects would be of negligible intensity.

At the Wright Memorial, Alternative B would involve the disturbance of soils for the construction of additional parking near the interpretive center. All activities would be conducted in conformance with an erosion control plan that would employ best management practices to minimize the area of soil disturbance and prevent the erosion of disturbed soils. The short-term, construction-related impacts on soils at the Wright Memorial would be direct, adverse, and of minor intensity.

When construction was completed, a vegetative cover of grasses similar to that currently existing in the area would be established. These soils are relatively easy to revegetate, as demonstrated by the effective vegetation cover that quickly was restored in the construction zone around the interpretive center and parking lot. As a result of the area's ability to quickly establish a protective vegetative cover, the long-term effects on the soils of the Wright Memorial would be negligible.

The new road north from the intersection of Kauffman Avenue and Ohio Highway 444 to Marl Road would result in a relatively narrow corridor of soil disturbance on a flat grade. The construction-related impacts on soils in this area would be direct and ad-

verse. Because of the small area involved and the effectiveness in this type of area of the best management practices that would be applied, the intensity of the short-term impacts would be minor. A protective vegetation cover would be established after construction was completed and would protect the soils so that the long-term effects would be of negligible intensity.

Cumulative Impacts

Cumulative impacts would be similar to those described in Alternative A. The long-term trend in the area is toward increased protection of the soil resource. In the long-term, Alternative C would continue the protection of soils in and near the park units and would not alter local or regional soil resource trends.

Conclusions

Direct, adverse, short-term impacts on soils of minor intensity would be related to the new construction associated with Alternative C. After a protective cover of vegetation was restored, the long-term impacts on soils would be negligible. Alternative C would not result in the impairment of soil resources of Dayton Aviation Heritage National Historical Park.

ALTERNATIVE C IMPACTS ON WATER QUALITY AND HYDROLOGY

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Runoff, Sediment, and Chemical Pollution near The Wright Cycle Company Complex. If the offsite storage and maintenance facility were built by others, the effects on runoff and sediment loading would be similar to those described for Alternative B. If the National Park Service secured the use of an existing building for use as a storage and maintenance facility, the effects on runoff and sediment loading would be similar to those described for Alternative A. In either case, the effects would be negligible.

Alternative C would have the same beneficial, long-term effects of consolidating all functions involving the storage and use of chemicals that were described for Alternative B. However, because there are no indications that problems currently exist involving the proper storage, use, and disposal of chemicals, the impact would be negligible.

Runoff, Sediment, and Chemical Pollution at Transportation Sites. Transportation facilities constructed in association with Alternative C would consist of expanded parking at the Wright Memorial, expanded parking at Huffman Prairie Flying Field, and 500 feet of new road from the intersection of Kauffman Avenue and Ohio Highway 444 to Marl Road. These would slightly increase the area of impermeable surface. However, these features are surrounded by large expanses of permeable soils that would be able to absorb the additional runoff and convey it to the ground water system. The direct, long-term, adverse effect on volumes of runoff generated would be negligible compared to Alternative A.

The intensity of the short-term construction effect on sediment transport at the Alternative C transportation sites would be negligible. All three sites are relatively small and level, and would be amenable to standard

soil protection measures. As described in Alternative B, the development and implementation of a storm water management plan that includes erosion control measures would minimize sediment transport into streams. After construction was completed, all areas would be revegetated. The protective vegetation cover would virtually eliminate the generation of sediment, and the long-term effects on water quality at all areas compared to Alternative A would be negligible.

Construction activities would be conducted in accordance with a fuels and lubricants management and spill response plan similar to that described in Alternative B. Because these measures would effectively prevent virtually all construction-related chemical pollution, the short-term effects on water quality would be negligible.

Runoff, Sediment, and Chemical Pollution at the Replica Wright B Flyer Hangar. Effects at the replica Wright B Flyer hangar would be negligible, as described for Alternative B.

Flood Management Capacity of the Retarding Basin. Alternative B facilities at The Wright Cycle Company complex and the Wright Memorial would not be within the retention basin of Huffman Dam. Therefore, this discussion is limited to the facilities on the north side of Ohio Highway 444.

Fill may be required for the 500 feet of new road from the intersection of Kauffman Avenue and Ohio Highway 444 to Marl Road. However, the required volume would be small and could probably be obtained from borrow areas along the road alignment. As a result, the short- and long-term effects of the roadway on the flood management capacity of the Huffman Dam retarding basin would be negligible.

Together, the new road and the expanded parking near Huffman Prairie Flying Field would require the importation of about 325 cubic yards of asphalt. If required by the Miami Conservancy District, an equivalent volume of soil from within the retarding basin could be hauled away for use as fill elsewhere in the Dayton area. As a result, the short- and long-term effects on the flood management capacity of the Huffman Dam retarding basin would be negligible.

As described for Alternative B, the new hangar for the replica Wright B Flyer would a negligible effect on the flood storage capacity behind Huffman Dam.

Water Quality of the Mad River Buried Valley Aquifer. Proper management of fuels and lubricants would ensure that adverse effects on the water quality of the Mad River Buried Valley Aquifer would not occur from the construction or operation of the Alternative C features. This alternative would not alter any aspects of the U.S. Air Force's ongoing remediation of Operable Unit 5 near Huffman Prairie Flying Field. As a result, Alternative C would have a negligible effect on the water quality of the Mad River Buried Valley Aquifer.

Cumulative Impacts

Cumulative effects of Alternative C on water quality and hydrology would be similar to those described for Alternative A.

Conclusions

Short and long-term effects on runoff, sediment, and chemical pollution at or near Dayton Aviation Heritage National Historical Park sites would be negligible.

The placement of fill or asphalt for the road and expanded parking within the Huffman Dam retarding basin would be compensated with equivalent storage elsewhere in the ba-

sin. As a result, the short- and long-term effects of these features on the flood management capacity of the retarding basin would be negligible.

Alternative C would have negligible effects on the water quality of the Mad River Buried Valley Aquifer. Construction- and operational-phase management and spill response plans for fuels, lubricants, and other chemicals would ensure that these materials would not pollute this drinking water aquifer.

Alternative C would not result in the impairment of water quality or hydrology of Dayton Aviation Heritage National Historical Park.

ALTERNATIVE C IMPACTS ON WETLANDS AND FLOODPLAINS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

At The Wright Cycle Company complex and the Wright Memorial, effects on wetlands and floodplains would be negligible, like those described for Alternative B in these areas.

On the north side of Ohio Highway 444, the final alignment of the road from the intersection with Kauffman Avenue to Marl Road has not been established. However, the preliminary layout of its alignment indicates that it would have negligible effects on wetlands. A detailed survey for jurisdictional wetlands has not been performed for the area of this road, which is outside Wright-Patterson Air Force Base on land owned by Miami Conservancy District. However, the alignment appears to be the former track of a dirt road with mixed upland old field and forest vegetation to the east and upland old field vegetation to the west. If this is confirmed by onsite surveys after the alignment is established, the impact of constructing and operating this new access road to Gate 18C on wetlands would negligible.

As described under the heading “Alternative C Impacts on Water Quality and Hydrology,” the new road and the expanded parking near Huffman Prairie Flying Field would require the importation of about 325 cubic yards of asphalt. If required by the Miami Conservancy District, an equivalent volume of soil from within the retarding basin could be hauled away for use as fill elsewhere in the Dayton area. As a result, the short- and long-term effects on the Mad River floodplain would be negligible. As described for Alternative B, the new hangar for the replica Wright B Flyer near Huffman Prairie Flying Field also would have negligible effects on the floodplain.

Cumulative Impacts

The cumulative impacts of Alternative C on wetlands and floodplains would be similar to those described for Alternative A.

Conclusions

Alternative C would have negligible effects on wetlands and floodplains. It would not result in the impairment of wetlands or floodplains within Dayton Aviation Heritage National Historical Park.

ALTERNATIVE C IMPACTS ON WILDLIFE AND WILDLIFE HABITATS, INCLUDING AQUATIC LIFE

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

The Wright Cycle Company Complex. Effects of Alternative C at The Wright Cycle Company complex would be similar to those described for Alternative B. The use of a storage and maintenance facility outside the park's boundary, regardless of whether it was an existing or newly constructed facility, would have a negligible effect on wildlife species and their habitats in this area.

Huffman Prairie Flying Field. In the vicinity of Huffman Prairie Flying Field, construction and operation of an expanded parking area and a kiosk would permanently convert about a quarter-acre of wildlife habitat to other purposes. However, these facilities would be sited in locations that provide relatively low-quality habitat, such as areas that currently are mowed or have old field vegetation. Because the areas to be converted are so small and currently provide limited habitat for terrestrial wildlife, both short and long-term impacts in this area would be adverse, primarily indirect, and of negligible intensity.

The alignment of the 500-foot-long access road from the intersection of Ohio Highway 444 and Kauffman Avenue to Marl Road is on an existing dirt track that currently provides low-quality wildlife habitat. Most of the adjoining habitat is upland old fields, which are common in the area and generally have a low value to wildlife. Moderate-quality habitat may occur at the road's north and south ends where there are bands of trees, but it should be possible to construct the road with the removal of few, if any, trees or edge areas. The effects of construction disturbance of about an acre of wildlife habitat in this area and the permanent conversion of about 0.6 acre of this low-quality habitat to other purposes would be adverse, primarily indirect, and of negligible intensity.

Increased visitation at Huffman Prairie Flying Field compared to Alternative A would have a negligible effect on wildlife. Almost all visitor activity would occur on the flying field, parking lots, and roads, which provide low-quality wildlife habitat. There would be a negligible increase in wildlife roadkill because most motorists would be driving with caution to avoid other visitors, especially children, and because the area is closed during the evening and nighttime hours when most wildlife is most active. Because the common wildlife species in the area are highly tolerant of human disturbance, the increased activity and noise centered on the flying field would not disturb their normal activities.

Wright Memorial. At the Wright Memorial, construction of the expanded parking could remove several trees and would permanently remove other vegetation, primarily grasses, from the quarter-acre parking lot. Because this area is small and currently provides limited habitat for terrestrial wildlife, both short and long-term impact in this area would be adverse, primarily indirect, and of negligible intensity.

Aquatic Habitat. No areas of aquatic habitat would be disturbed by the construction or operation of the Alternative C features. Effects of Alternative C on aquatic habitat within or near units of Dayton Aviation

Heritage National Historical Park would be negligible.

Cumulative Impacts

Trends in the availability of wildlife habitat and in the wildlife populations they support were described for Alternative A. Alternative C would result in the incremental loss of about an acre of low-quality terrestrial wildlife habitat in Wright-Patterson Air Force Base. Cumulatively with other actions, this would probably have a negligible impact on wildlife and their habitats.

Conclusions

Effects of Alternative B on terrestrial wildlife and their habitats at The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial would be negligible. Effects on aquatic life and habitats would be negligible. This alternative would not result in the impairment of wildlife resources or habitats in Dayton Aviation Heritage National Historical Park.

ALTERNATIVE C IMPACTS ON ARCHEOLOGICAL RESOURCES

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

The vicinity of The Wright Cycle Company complex does not include any known prehistoric archeological resources, although historic archeological resources may be present. With mitigation as described for Alternative B, actions associated with Alternative C in this area, including securing and operating a maintenance and storage facility outside the park boundary, would have a minor adverse impact on archeological resources and would result in a finding of no adverse effect.

At the Wright Memorial, the U.S. Air Force would continue its proven effective protection of the prehistoric burial mounds. Construction and operation of Alternative C facilities outside the mound area would have a negligible impact on the mounds. As described in Alternative B, expanded interpretation of these prehistoric archeological resources may increase visitors' appreciation for this resource but would not have any impact on the mounds themselves. Measures to protect the mounds, such as those described in Alternative B, would be implemented if increased visitor awareness of the mounds led to trampling or other disturbance of the mounds.

Alternative C would include expanded parking near the Huffman Prairie Flying Field Interpretive Center at the Wright Memorial. As described in the "Affected Environment" section, the Wright Memorial grounds excluding the mounds were tested in 1991 and 1992 for archeological resources. No prehistoric sites or historical sites were found. Therefore, impacts of Alternative C on archeological resources in this area are expected to be negligible. However, Alternative C would include the same measures described in Alternative B, including stop-work provisions in all construction documents, to protect archeological resources in the event that they were discovered during construction.

Because it was unsuited for farming, this area was relatively undisturbed by past activities and could include unknown prehistoric archeological resources. Archeological investigations as described for Alternative B would be conducted before the final siting of the parking area. If resources were

discovered, the siting would be altered to avoid them, resulting in negligible impacts on archeological resources.

The area of the new road between Marl Road and the intersection of Kauffman Avenue and Ohio Highway 444 is thought to have been extensively disturbed during the construction of the highway, Huffman Dam, or both. Moreover, aerial photography in the Greene County soil survey (Garner *et al.* 1978) shows a dirt track road on this alignment, the construction of which would have disturbed surface archeological artifacts. Even though there may be a low probability of archeological resources in this area, archeological investigations would be conducted before final locations for the road were established. If resources were found, appropriate modifications in the siting of facilities for avoidance would be made, resulting in negligible impacts.

As described for Alternative B, the roadbed of the Dayton, Springfield, and Urbana Interurban Rail Line is still evident in some areas along the Marl Road corridor that visitors would use to enter the Huffman Prairie Flying Field area. Resource protection measures in these areas would be similar to those described for Alternative B and impacts would be negligible.

Parking would be expanded near Huffman Prairie Flying Field, but no disturbance of the flying field surface would occur. An archeological survey would be conducted, if needed, for expanded parking near the flying field. If resources were discovered, the siting would be altered to avoid them, resulting in negligible to minor, adverse impacts.

If archeological resources are found during construction of the Alternative C transportation components, the same measures described in Alternative B would be implemented. These include the measures for any buried human remains encountered during construction that were described in the Alternative B impacts evaluation.

In summary, archeological investigations would precede areas of expanded parking or the new road alignment north of Ohio Highway 444 proposed in Alternative C. This commitment to conduct archeological investigations for resources prior to selecting the final alignment and to avoid any that are found would result in a negligible to minor, adverse impact on archeological resources in this area and a finding of no adverse effect.

Cumulative Impacts

The cumulative impacts of Alternative C would be similar to those described for Alternative A.

Conclusions

Construction and operation of Alternative C would have negligible to minor adverse, long-term impacts on prehistoric and historic archeological resources in the vicinity of The Wright Cycle Company complex, the Wright Memorial, and Huffman Prairie Flying Field. This alternative would not result in the impairment of archeological resources of Dayton Aviation Heritage National Historical Park.

ALTERNATIVE C IMPACTS ON HISTORIC STRUCTURES AND BUILDINGS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

In the vicinity of The Wright Cycle Company complex, a storage and maintenance facility would be obtained outside the park boundary. This would not require the removal of any existing historic buildings or structures, or result in any stabilization, rehabilitation, or restoration activities in addition to those associated with Alternative A. As a result, the negligible impacts of the storage and maintenance facility would be the same as described for Alternative B.

Alternative C would include the rehabilitation and adaptive use of the house at 26 South Williams Street. This action would have the same long-term, direct, minor, beneficial impact that was described for Alternative B.

Alternative C would include the rehabilitation of the Pekin Theater and Fish Market by their owner, Wright Dunbar, Inc., with subsequent use of all or part of the buildings by the National Park Service for education and interpretive activities. The rehabilitation of these buildings to the Secretary of the Interior's (1995a) standards already is underway, using a federal grant secured by Wright Dunbar, Inc. The rehabilitation of these buildings will occur regardless of whether they subsequently are used by the National Park Service or another tenant. Therefore, the impacts of the Pekin Theater and Fish Market components of Alternative C on historic structures and buildings would be negligible.

Similar to Alternative A, this alternative would have negligible impacts on historic structures and buildings at the Wright Memorial and Huffman Prairie Flying Field.

Cumulative Impacts

Cumulative impacts of Alternative C on historic structures and buildings would be the same as those described for Alternative A.

Conclusions

Alternative C would have a negligible to minor, long-term, beneficial impact on historic structures and buildings in the vicinity of The Wright Cycle Company complex, the Wright Memorial, and Huffman Prairie Flying Field. This alternative would not result in the impairment of historic structures and buildings at Dayton Aviation Heritage National Historical Park.

ALTERNATIVE C IMPACTS ON CULTURAL LANDSCAPES, INCLUDING URBAN QUALITY AND DESIGN OF THE BUILT ENVIRONMENT

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

At The Wright Cycle Company complex, the direct impacts of Alternative C on the historic landscape would be the same as those described for Alternative B. The storage and maintenance facility would not be within the park boundary and would be owned by someone other than the National Park Service. However, if it were built in or near the West Third Street Historic District to NPS specification, this facility would meet the Secretary of the Interior's standards for the treatment of cultural landscapes (The Secretary of the Interior 1995b). By providing historically compatible infill on a currently vacant lot, it would

produce negligible to minor beneficial impacts similar to those described for Alternative B.

Alternative C would include the rehabilitation of the Pekin Theater and Fish Market by their owner, Wright Dunbar, Inc., with subsequent use of all or part of the buildings by the National Park Service for education and interpretive activities. The rehabilitation of these buildings to the Secretary of the Interior's (1995b) standards already is underway, using a federal grant secured by Wright Dunbar, Inc. The beneficial contribution of the rehabilitated buildings to the cultural landscape will occur regardless of whether they subsequently are used by the National Park Service or another tenant. Therefore, the impact of the Pekin Theater and Fish Market components of Alternative C on the cultural landscape component would be beneficial but of negligible intensity.

As with Alternative B, protection of the remnants of the Dayton, Springfield, and Urbana Interurban Rail Line near Huffman Prairie Flying Field would have a direct, minor, beneficial contribution on the cultural landscape. This alternative would include expanded parking near the flying field, but this feature could probably be sited so that it would not be highly evident and would have a negligible, adverse impact on the cultural landscape.

The expanded parking at the Wright Memorial would be visually evident. However, it probably would be located close to the south boundary of the park near the modern interpretive center where it would not intrude on the overall character of this park and would not diminish the overall integrity of the landscape. Under the National Environmental Policy Act, there would be a negligible adverse impact on the cultural landscape that, under Section 106 of the National Historic Preservation Act, would result in a finding of no adverse effect.

Cumulative Impacts

Cumulative impacts of Alternative C would be similar to those described for Alternative A.

Conclusions

At The Wright Cycle Company complex, Alternative C would have negligible to minor beneficial impacts on the historic scene and would be compatible with the design of the built environment. Both beneficial and adverse impacts on the cultural landscape would occur at Huffman Prairie Flying Field, but the intensities would be negligible or minor. At the Wright Memorial, the impact of the expanded parking would be negligible and adverse. This alternative would not result in the impairment of cultural landscapes in Dayton Aviation Heritage National Historical Park.

SECTION 106 SUMMARY FOR ALTERNATIVE C (NPS PREFERRED)

The Section 106 summary in Table 27 lists the National Register of Historic Places properties and National Historic Landmarks within the area of potential effect for Alternative C, along with the proposed actions and effects of those actions as assessed under criteria contained in 36 *Code of Federal Regulations* 800. Brief descriptions of mitigating measures and further Section 106 compliance needed for Alternative C are included in Table 27.

Additional mitigating measures (best management practices) would help avoid the adverse effects on cultural resources that are mentioned briefly in Table 27. For example:

TABLE 27: EFFECTS OF ALTERNATIVE C ON CULTURAL RESOURCES

National Register Property	Proposed Action	Effect of Action	Mitigating Measures	Further Section 106 Compliance Needed
Dayton Aviation Heritage National Historical Park, listed on the National Register 09/08/1988, includes *Wright Cycle Company and Wright and Wright Printing,* listed on the National Register 02/13/1986; National Historic Landmark 06/21/1990. Alternate names for *Wright and Wright Printing* include the Wright-Dunbar Interpretive Center and the Hoover Block. The park also includes the Setzer Building (also know as the Aviation Trail Visitor Center and Museum) and buildings at 30 South Williams Street and 26 South Williams Street. These buildings, along with the Pekin Theater, are part of the *West Third Street Historic District,* listed on the National Register 01/25/1989.	a. Rehabilitate and stabilize house at 26 South Williams Street for administrative and/or partner use.	a. No adverse effect (beneficial effect on historic structure of rehabilitation).	a. Work would be consistent with the Secretary of the Interior's standards.	a. Consult with Ohio state historic preservation officer regarding plans for stabilization and rehabilitation.
	b. Secure use of maintenance and storage facility outside park boundaries.	b. No adverse effect with mitigation.	b. Design, materials, scale, and other features of new building would be in keeping with historic context; historic research and archeological investigations, as appropriate, would precede construction activities.	b. Consult with Ohio state historic preservation officer regarding plans for new building. Preliminary plans would be sent to Ohio state historic preservation officer and preservation agencies for review and comment.
	c. Construct historically compatible outbuildings behind the cycle shop.	c. No adverse effect with mitigation.	c. Restoration of historic scene would be based on historic documentation (such as correspondence, photographs, and Sanborn maps) and would be consistent with the Secretary's standards.	c. Consult with Ohio state historic preservation officer regarding plans for new buildings. Preliminary plans would be sent to Ohio state historic preservation officer and preservation agencies for review and comment.

TABLE 27: EFFECTS OF ALTERNATIVE C ON CULTURAL RESOURCES (CONTINUED)

National Register Property	Proposed Action	Effect of Action	Mitigating Measures	Further Section 106 Compliance Needed
Huffman Prairie Flying Field, listed on the National Register 05/06/1971; National Historic Landmark 06/21/1990	a. Remove existing building and construct dedicated storage facility for the replica Wright B Flyer. Compliance for this will be completed in a U.S. Air Force environmental assessment, currently in preparation.	a. No adverse effect with mitigation (U.S. Air Force will do compliance).	a. Will be provided in the U.S. Air Force environmental assessment, currently in preparation, for this action.	a. U.S. Air Force will do compliance.
	b. (Outside historic zone but adjacent): Build 500 feet of new road, beginning at Kauffman Avenue, across Miami Conservancy District lands, tying into Marl Road corridor. Ohio Highway 444 would be crossed via the existing signalized grade crossing at Kauffman Avenue.	b. No historic properties affected.	b. Archeological investigations (see above), and avoidance strategies would be used to minimize impacts on archeological resources.	b. and c. Submit archeological findings and evaluations, plus preliminary plans to Ohio state historic preservation officer for review and concurrence; in consultation with Ohio state historic preservation officer devise mitigation measures for archeology and landscape.
	c. Build kiosk for interpretive purposes.	c. No adverse effect.	c. Careful design and siting to avoid impacts on cultural landscape.	
Wright Brothers Memorial Mound Group at the Wright Memorial and Huffman Prairie Flying Field Interpretive Center; Mound group listed on the National Register 02/12/1974	a. Expand parking area to as much as 100 vehicles, visually screen steam lines.	a. No adverse effect with mitigation.	a. Conduct archeological investigations (as appropriate) in areas where ground disturbance is proposed, and devise appropriate mitigation measures if necessary. Follow recommendations of the *Cultural Landscape Study* to help prevent impacts on the Olmsted brothers firm landscape features.	a. Submit archeological findings and evaluations and parking designs to Ohio state historic preservation officer for review and concurrence; in consultation with state historic preservation officer devise mitigation measures for archeology and landscape.

- Archeological investigations would be conducted before the final locations of features such as parking areas, bridge embankments, or new roadways were established. If resources were discovered, the project features would be altered to avoid them.
- If buried human remains were encountered during construction, activities immediately would be halted and the remains would be handled consistent with the regulations for inadvertent discoveries under the Native American Graves Protection and Repatriation Act.
- Consistent with previous requests from the state historic preservation officer, the U.S. Air Force and National Park Service will continue to avoid excavation or earthmoving activities within or near Huffman Prairie Flying Field.

This general management plan amendment and environmental impact statement will be sent to the Ohio State Historic Preservation Office for review and comment as part of the Section 106 compliance for the project area. Prior to implementation of individual actions associated with this general management plan amendment, an additional evaluation of effect on listed and potential National Register of Historic Places sites within the area of potential effect will be performed and sent to the Ohio State Historic Preservation Office to complete Section 106 compliance (see listing in Table 27. If necessary, additional mitigation measures would be developed in consultation with the state historic preservation officer.

As described in the "Affected Environment" section, Section 110(f) of the National Historic Preservation Act requires special consideration of potential adverse impacts on National Historic Landmarks, mandates agencies to minimize harm to these important cultural features, and stipulates that reasonable time be provided to the Advisory Council on Historic Preservation to consider the effects of future projects. During its implementation of the actions associated with Alternative C, the National Park Service will ensure compliance with all of these provisions, in accordance with the National Historic Preservation Act implementing procedures in 36 *Code of Federal Regulations* 800.10. This will apply not only to the four designated National Historic Landmarks within the park but to all of the park's National Register-eligible historic properties.

Implementing regulations of the National Historic Preservation Act (revised regulations effective January 2001) in 36 *Code of Federal Regulations*, Part 800.5 address the criteria of effect and adverse effect. Pursuant to these regulations, the National Park Service finds that the implementation of the general management plan amendment Alternative C in Dayton Aviation Heritage National Historical Park, with identified mitigation measures, would not result in adverse effects on archeological, historic, ethnographic, cultural landscape, or museum collection resources currently identified as eligible for or listed in the National Register of Historic Places.

ALTERNATIVE C IMPACTS ON ECONOMICS AND SOCIOECONOMICS, INCLUDING SOCIALLY OR ECONOMICALLY DISADVANTAGED POPULATIONS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Effects from Construction. Alternative C would involve construction totaling approximately $3.5 to $4.0 million. The short-term, direct and indirect effects on income and tax revenues would be only about a quarter of those described for Alternative B. However, because they probably could be detected and measured in local economic statistics, the beneficial effect would be minor compared to Alternative A.

Long-Term Effects. Alternative C would include up to $610,000 in additional operational costs per year compared to Alternative A. Including secondary jobs, Alternative C would create a total of about 20 new jobs within the Dayton area. However, in a job market of more than 350,000 people, this long-term, beneficial effect would be of negligible intensity.

Alternative C would include National Park Service payments of up to $250,000 per year for use of the Pekin Theater and the storage and maintenance facility. Because these funds would be used to repay the construction loans and operate these facilities, they would have a negligible economic effect. The differences between Alternative C and Alternative A also would be negligible in the areas of sales and income and in the levels of tax revenues and demands for city services.

Alternative C would have beneficial neighborhood effects related to education compared to Alternative A. For example:

- The community involvement aspects of this alternative would include increased outreach into and coordination with local schools.
- The park, with the assistance of partners, may be able to offer or facilitate new programming, such as the use of flight simulators, that would inspire some children to stay in school or excel in their studies.
- The Pekin Theater might be used by a partner to provide adult and youth evening and night classes, which would help increase the levels of educational achievement in the neighborhood.

These long-term, direct and indirect, beneficial effects would be most evident in the neighborhood within a half-mile of the park. However, the outreach programming coordinated with local schools could have effects throughout the city. Based on the impact thresholds provided with the Alternative A description, the intensity of effects would be minor to moderate. Although they could not be measured, the effects on individual lives could be substantial.

Alternative C also would have beneficial effects on crime compared to Alternative A. This alternative would stress neighborhood involvement and activity, which are proven crime deterrents. Neighbors could get to know each other better through a wide range of activities such as classes and concerts that would occur outdoors and indoors in and around the park. By drawing area residents out of their homes for travel and participation in activities, there would be more observers on the street, which would discourage criminal activity. Programs conducted separately or jointly by the National Park Service and its partners in and near the park could provide local children and youths a place to go and things to do in the evenings that would divert them from delinquency. The long-term, direct and indirect, beneficial effects on neighborhood crime would be moderate.

The neighborhood effects of Alternative C relating to improved education and decreased crime would be additive with those already occurring because of Alternative A. The beneficial effect of Alternative C would be moderate.

Environmental Justice. The environmental and public health effects of Alternative C near The Wright Cycle Company complex would be the same as those described for Alternative A. Alternative C would not have disproportionately high and adverse human health or environmental effects in the vicinity of The Wright Cycle Company complex.

Cumulative Impacts

Cumulative effects of Alternative C would be the same as those described for Alternative A.

Conclusions

Compared to the alternative to continue current management, Alternative C would have short-term, beneficial, direct and indirect effects of minor intensity related to the construction or rehabilitation of park facilities. Long-term, beneficial social and economic effects of Alternative C would be minor or moderate compared to Alternative A in the areas of education improvements and crime reductions. It also would have the same major improvements to the neighborhood compared to current conditions that would occur with Alternative A. The environmental justice evaluation found that Alternative C would not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

ALTERNATIVE C IMPACTS ON LAND USE PLANS, POLICIES, OR CONTROLS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

In the vicinity of The Wright Cycle Company complex, Alternative C would have negligible effects on land use plans, policies, or controls. Similar to Alternative A, the NPS facilities would not only comply with land use plans, policies, and controls, but also would serve as an important contributor to the ability of the area to meet the plans, policies, and goals of the municipality and numerous organizations for the revitalization of the West Third Street corridor and surrounding residential neighborhoods.

At the sites within Wright-Patterson Air Force Base (Huffman Prairie Flying Field and the Wright Memorial), Alternative C would conform with all but one of the area's land use plans, policies, or controls. Alternative C components at the Wright Memorial and north of the proposed bridge over Ohio Highway 444 would result in conflicts with the base's endangered species management plan's provisions for protecting the Indiana bat and blazing star stem borer moth. The endangered species management plan is included as Chapter 6 of the base Integrated Natural Resources Management Plan (Wright-Patterson Air Force Base 2001c). As described previously, any deviation from this plan is a violation of the Sikes Act and can be avoided only by amending the endangered species management plan in the next update of the Integrated Natural Resources Management Plan.

Conflicts with Indiana Bat Management Strategies. Wright-Patterson Air Force Base management guidelines for the Indiana bat are intended to protect forested areas, particularly including the mature or overmature trees that could serve as maternity and roost trees for Indiana bats. The expansion of parking facilities, particularly

at the Wright Memorial, could result in the removal of some trees that could be used by bats. This most likely would involve trees used for roosting, because the pines that grow in this area are not favored by the Indiana bat as maternity facilities.

Based on the impact thresholds presented in the Alternative A methodology, conflicts with endangered species management plan provisions protecting the Indiana bat would represent a short-term, adverse, direct impact of minor intensity. The conflict would require negotiations between the U.S. Air Force, National Park Service, and U.S. Fish and Wildlife Service but could readily be reconciled to the satisfaction of all parties. The solution potentially would involve minimizing the number of mature trees that had to be removed, providing a variance that would allow the parking facility to be built, and providing mitigation onsite and offsite to replace lost bat habitat.

Conflicts with Blazing Star Stem Borer Management Strategies. To manage for the blazing star stem borer, the moth's food plant needs to be managed. As described in Alternative B, the base endangered species management plan includes goals to "improve the abundance and spatial distribution of native *Liatris* species." Alternative C's expanded parking near Huffman Prairie Flying Field could be within the undefined "buffer surrounding the prairie to limit encroachment from other land uses." Because of its proximity to Huffman Prairie, areas used for expanded parking could also incorporate lands that would be suitable to "create conditions that will promote establishment of *Liatris* species."

The conflict between endangered species management plan goals for the blazing star stem borer and the construction of the Alternative C parking area near Huffman Prairie Flying Field could represent a short-term, adverse, direct impact on land use plans, policies, or controls at Wright-Patterson Air Force Base. The intensity would be minor because the conflicts probably could readily be reconciled to the satisfaction of all parties. This could include conducting a siting study for the additional parking to ensure that suitable areas for the future establishment of *Liatris* species were avoided. It could also involve developing mitigation measures in concert with The Nature Conservancy, U.S. Air Force, and others to better define the soil and hydrologic conditions that occur in the areas where *Liatris* plants have been found outside Huffman Prairie, identifying other area where those conditions currently occur or could be created, and managing those areas to encourage their colonization by *Liatris* plants.

Cumulative Impacts

The cumulative impacts of Alternative B would largely be similar to those described for Alternative A. However, as noted above, the parking facilities included in Alternative C could result in conflicts with the Wright-Patterson Air Force Base endangered species management plan with regard to two species.

The National Park Service intends to maintain its spirit of cooperation that has made it welcome in the community as a partner and neighbor. Therefore, before the parking elements of Alternative C were implemented, the National Park Service would ensure that the conflicts were resolved to the satisfaction of all parties.

Conclusions

In the vicinity of The Wright Cycle Company complex, Alternative C would have negligible effects on land use plans, policies, or controls. At the sites within Wright-Patterson Air Force Base, Alternative C could result in direct, adverse conflicts with the base's endangered species management

plan. Conflicts with provisions protecting the Indiana bat and blazing star stem borer probably could readily be reconciled to the satisfaction of all parties. Therefore, both would represent a short-term impact of minor intensity.

ALTERNATIVE C IMPACTS ON PARK AND PARTNER OPERATIONS

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Dedicated Storage and Maintenance Facility

If the dedicated storage and maintenance facility was located within a block or two of The Wright Cycle Company complex, the facility would have the same long-term, indirect, beneficial effects of moderate intensity on park and partner operations that were described for a facility within park boundaries for Alternative B. Siting it at a greater distance would reduce the intensity of the beneficial effects to minor.

As described in the desired conditions listed under “Regulations and Policies” in the Alternative A analysis, NPS policy is to place these types of facilities outside park boundaries whenever practicable. Siting of this facility outside the park boundaries would better conform with the NPS policy than would the Alternative B approach.

Space for Partners at The Wright Cycle Company Complex

With the community partner emphasis of Alternative C, the rehabilitated space in the house at 26 South Williams Street would more likely be used by park partners other than legislated partners (all of which already have their own administrative locations). It may also be possible to provide space for community groups within the Pekin Theater. The availability of office space in the neighborhood from which they could operate could help nurture emerging community groups and improve communications among groups with goals that are related to those of the park and each other. The long-term, indirect, beneficial effects on park and partner operations would be of moderate intensity.

Staffing

Alternative C would include hiring four additional NPS staff members to provide interpretation and outreach services. Increasing the NPS staff for the park by approximately 20 percent would have a long-term, direct, beneficial effect of moderate intensity on the NPS’ ability to operate Dayton Aviation Heritage National Historical Park.

Continued Runway Operations

Compared to Alternative A, the effects of Alternative C on runway operations would be negligible.

Training in the Prime Base Engineer Emergency Force (BEEF) Training Area

The route for accessing Huffman Prairie Flying Field via Gate 18C would follow Marl Road and would not encroach on the Prime BEEF Training Area. Compared to Alternative A, the effects of Alternative C on training in this area would be negligible.

Base Security

All of the construction associated with extending Kauffman Road to the north to intersect with Marl Road and provide access via Gate 18C would occur outside Wright-Patterson Air Force Base. Construction in this area would have negligible effects on base security compared to Alternative A.

As with Alternative B, visitors would enter and exit the Huffman Prairie Flying Field area via the Marl Road alignment. Visitors may be less likely to drive from the flying field into the other facilities in Wright-Patterson Air Force Base, compared to Alternative A. However, because there would be no change in the fencing and access to these facilities could still occur, the long-term, indirect, beneficial effect would only be of negligible intensity.

Staff Transit between the Flying Field and Interpretive Center

Alternative C would reduce the time of travel between Huffman Prairie Flying Field and the interpretive center for NPS staff. By using the extension of Kauffman Avenue and accessing the base via Gate 18C, staff could complete the trip between the sites in about ten minutes, compared to the 15 minutes required in Alternative A. The intensity of this long-term, indirect, beneficial effect would be minor.

Transporting the Replica Wright B Flyer

As with Alternative B, the availability of a hangar for the replica Wright B Flyer close to Huffman Prairie Flying Field would have a long-term, indirect, beneficial effect of moderate intensity to the National Park Service and U.S. Air Force.

Maintenance of New Facilities

Maintenance of the Pekin Theater and storage and maintenance facility near The Wright Cycle Company complex would be the responsibility of the buildings' owners. Therefore, the effects on NPS operations would be negligible.

As with Alternative B, maintenance of the hangar for the replica Wright B Flyer would have a minor, long-term, adverse, indirect effect on NPS operations. The expanded parking associated with this alternative at the Wright Memorial and Huffman Prairie Flying Field would require little maintenance and would have a negligible effect on operations. The shorter route between the interpretive center and flying field would have long-term, indirect, beneficial effects of negligible intensity on the ability of the National Park Service to maintain facilities at the flying field.

Compared to Alternative A's circuitous route to Huffman Prairie Flying Field, Alternative C would result in fewer visitor miles driven on Air Force base roads and reduced needs for maintenance. However, this long-term, beneficial effect on the U.S. Air Force would be negligible, particularly when compared to the road wear that occurs from the 20,000 base employees who drive within the installation on a daily basis.

Cumulative Impacts

Cumulative effects would be the same as those described for Alternative A.

Conclusions

The effects on park and partner operations from implementing Alternative C are summarized as follows:

- Dedicated storage and maintenance facility: long-term, indirect, beneficial effects of moderate intensity if the facility is within two blocks of The Wright Cycle Company complex, or minor intensity if the facility is farther away.
- Space for partners at The Wright Cycle Company complex: long-term, indirect, beneficial effects of moderate intensity.
- Additional staff for the Pekin Theater: long-term, direct, beneficial effects of moderate intensity.
- Training in the Prime BEEF Training Area: negligible effects.
- Security during construction: negligible effects.
- Changing the route of visitor access to the flying field on security: long-term, indirect, beneficial effect of negligible intensity.
- Staff transit between the flying field and interpretive center: long-term, indirect, beneficial effect of minor intensity.
- Transporting the replica Wright B Flyer: long-term, indirect, beneficial effect of moderate intensity to the National Park Service and U.S. Air Force.
- Maintenance of new facilities: negligible effects for the Pekin Theater, storage and maintenance facility, expanded parking, and Wright-Patterson Air Force Base roads, and long-term, indirect, adverse effect of minor intensity for the replica Wright B Flyer hangar.

ALTERNATIVE C IMPACTS ON PUBLIC HEALTH AND SAFETY

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Traffic Safety near The Wright Cycle Company Complex

Like Alternative B, this alternative would emphasize the free parking lots in the area as target destinations for drivers. This would have the same long-term, indirect, beneficial effect of minor intensity on traffic safety compared to Alternative A that was described in Alternative B. It would not produce adverse effects on the area's minority populations and low-income populations that would be measurably different from those sustained by other population groups.

The community involvement aspects of Alternative C would increase the frequency of travel by area residents to the park. Some of these visitors from the neighborhood would be children who would come to the park on foot or by bicycle. Children sometimes are less mindful of safety than adults, and their travel to and from the park could result in some traffic accidents. However, it is likely that their travel and time spent at the park would be replacing other activities in the neighborhood that could put them in a simi-

lar or greater level of jeopardy. Therefore, the impact on traffic safety from travel by neighborhood residents would be negligible.

Traffic Safety near the Wright Memorial and Huffman Prairie Flying Field

Alternative C would route the same number of vehicles through the intersection of Kauffman Avenue and Ohio Highway 444 as Alternative A. It would eliminate the drive on Ohio Highway 444 between Kauffman Avenue and Gate 16A, but the beneficial reduction in accidents that would occur in this area could not be distinguished from historical norms and would be of negligible intensity.

Safety Risks Represented by Military Operations

Safety risks represented by military operations would be the same as those described for Alternative A.

Emergency Response

Alternative C would not change emergency response at The Wright Cycle Company complex or the Wright Memorial and would have a negligible effect on this aspect of public health and safety at these sites.

With the use of Gate 18C, emergency responders would have a more direct route to access the flying field than the use of Gate 16A under Alternative A. However, the difference in time would be only about a minute (about ten percent). This small difference, combined with the infrequency of emergency responses to this area, would result in a long-term, beneficial, indirect effect of negligible intensity.

Alternative C would include additional parking at the Wright Memorial and Huffman Prairie Flying Field. As described for Alternative B, this would result in a long-term, indirect, beneficial, minor effect on public health and safety at the Wright Memorial. Because overflow parking along access roads that could block emergency access is not a problem at Huffman Prairie Flying Field, the effect at this site would be negligible.

Cumulative Impacts

Cumulative effects of Alternative C on public health and safety would be the same as those described for Alternative A.

Conclusions

At The Wright Cycle Company complex, dispersing traffic away from areas of heavy pedestrian use would have a long-term, indirect, beneficial effect of minor intensity. It would not produce adverse effects on the area's minority populations and low-income populations that would be measurably different from those sustained by other population groups.

The availability of additional parking at the Wright Memorial would improve emergency access during busy days and have a long-term, indirect, beneficial, minor effect on public health and safety. All other effects on Alternative C on public health and safety would be of negligible intensity.

ALTERNATIVE C IMPACTS ON TRANSPORTATION

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described

for the alternative to continue current management.

Analysis

Effects of Alternative C in the vicinity of The Wright Cycle Company complex would be the same as Alternative B with regard to number of trips, levels of service and availability of parking. In the vicinity of Huffman Prairie Flying Field and the Wright Memorial, it would have the same effects as Alternative B with regard to the number of trips.

Table 25 on page 211 shows the levels of service that were calculated by Burgess & Niple, Limited (2002) for Alternatives A and C for the intersection of Ohio Highway 444 and Kauffman Avenue for park visitation at 400,000 visitors per year. This approximate level of visitation is anticipated by the end of the planning period in 2025. In several lanes, decreases in the levels of service of at least two steps would occur for Alternative C, compared to levels of service that were estimated for Alternative A. This would indicate a long-term, direct, adverse impact of major intensity on this intersection by the year 2025.

The Ohio Department of Transportation, District 8, is aware of the potential for future adverse effects at this intersection. They will be monitoring intersection performance throughout the planning period. If the major, adverse effects on levels of service predicted by the Burgess & Niple, Limited (2002) study occurred, the Ohio Department of Transportation would design and implement mitigation measures to reduce the intensity of the impact to a level of service C (Ohio Department of Transportation, Hamilton 2004). Candidate actions could include:

- Imposing turn lane restrictions;
- Widening the intersection and constructing additional turn lanes; and
- Changing the duration of the traffic signal's red/green cycles for the various lanes within the intersection and changing the timing of the light relative to other traffic signals at nearby intersections (Ohio Department of Transportation, Hamilton 2004).

With this mitigation, the net intensity of the long-term, direct, adverse impact on this intersection compared to Alternative A by the year 2025 would be moderate.

Parking would be expanded to include up to 100 vehicle spaces at the Wright Memorial and 60 spaces at Huffman Prairie Flying Field. This would accommodate the parking needs of all peak-season weekend visitors at the Wright Memorial. A low level of unmet parking demand would still occur at Huffman Prairie Flying Field. The effects of parking are discussed under visitor use and experience.

Cumulative Impacts

Cumulative impacts of Alternative C would be the same as Alternative A.

Conclusions

Compared to Alternative A, this alternative would have long-term, beneficial, indirect effects of moderate intensity on South Williams Street and long-term, adverse, indirect effects of minor intensity on the other secondary streets in the area. A long-term, direct, adverse impact of major intensity would occur in several lanes in the intersection of Ohio Highway 444 and Kauffman Avenue. Compared to Alternative A, the long-term, beneficial, direct effect on parking would be moderate at the Wright Memorial and minor at the flying field.

ALTERNATIVE C IMPACTS ON VISITOR USE AND EXPERIENCE

The analysis methods, including impact threshold definitions, geographic area of analysis, issues, and cumulative impact methods, are identical to those described for Alternative A. The applicable regulations and policies, including desired conditions, also are identical to those described for the alternative to continue current management.

Analysis

Adequate Visitor Amenities. As discussed in the transportation section, Alternative B would improve the availability of parking at both Wright-Patterson Air Force Base sites. Compared to Alternative A, the long-term, beneficial, direct and indirect effect would be minor to moderate at the Wright Memorial and minor at the flying field.

Portable toilets would improve access to sanitation facilities. The long-term, beneficial, direct and indirect effect would be minor.

Visitor Programming. Alternative C would use the space in the Pekin Theater and the time and skills of four new NPS staff members to provide additional visitor programming at The Wright Cycle Company complex. Through an emphasis on partnerships, they would be augmented by personnel from partner organizations. The potential range of new programming could be limited only by the imagination. For example, within the new storage and maintenance facility, interested visitors could learn about construction (and rehabilitation) of late 1800s buildings while in the Pekin Theater's classrooms, retired Air Force pilots could teach local teens the basics of flying, including time in a flight simulator. The long-term, beneficial, direct and indirect effects of additional visitor programming would be major.

Except for the absence of a shuttle trip, Alternative C would provide the same additional visitor programming at the Wright Memorial and Huffman Prairie Flying Field that was described for Alternative B. Interpretation also could be provided in the kiosk. More importantly, as a result of this alternative's expanded emphasis on partnerships, personnel from partner organizations and other trained interpreters could participate in visitor programming at these sites. The long-term, direct and indirect, beneficial effects on visitor programming at the Wright Memorial and Huffman Prairie Flying Field would be of moderate intensity.

Community Outreach. Alternative C would emphasize community outreach to involve the neighborhood and entire city in the park and to create a new group of nontraditional visitors. NPS resources would focus on park-related activities, such as carrying park programs into schools and civic organizations.

Through the efforts of partners, park facilities could be used for other activities that would touch a broad spectrum of the community. Examples could include night-school classes in the Pekin Theater's classrooms, drama and dance lessons with performances on stage, seniors' programs, story circles for children, or concerts in the plaza or theater. As described in the evaluation of impacts on park and partner operations, the ability to provide office space in the rehabilitated house at 26 South Williams Street could help nurture emerging community groups and improve communications among groups with goals that are related to those of the park and each other. The long-term, beneficial, direct and indirect effects of Alternative C's community outreach focus would be major.

Continuity of Experience. Continuity between the Wright Memorial and Huffman Prairie Flying Field would be improved by

eliminating the drive on Ohio Highway 444, but visitors would still have to exit Wright-Patterson Air Force Base by one gate, cross the highway, and reenter the base through another gate to move between the two sites. The long-term, direct and indirect, beneficial effects of improved continuity would be of minor intensity.

Ease of Visitor Access. Visitors would find it simpler to travel between the interpretive center and Huffman Prairie Flying Field by crossing Ohio Highway 444 and reentering Wright-Patterson Air Force Base via Gate 18C than taking Alternative A's circuitous route that involves travel on Ohio Highway 444 and use of Gate 16A. However, taken in the larger context of wayfinding among all of the park units, or driving from other cities or states just to get to the park, the long-term, direct, beneficial effect would be of minor intensity.

Maintaining a Consistently High-Quality Visitor Experience. The use of indicators and standards to maintain the quality of the visitor experience, with the associated implementation of monitoring activities and management actions, would enable the National Park Service to reduce the adverse effects that, in Alternative A, would be associated with increasing visitation.

It may eventually be appropriate to use a reservation system or program of guaranteed entrance at a later time for entire sites, such as Huffman Prairie Flying Field, or facilities within sites, such as The Wright Cycle Company building at The Wright Cycle Company complex. These approaches would ensure the availability of resources and programs for visitors, and reduce the frustration of being denied access.

The planned capacity for the parking lot at the Wright Memorial (100 vehicles) may not be sufficient to provided parking to all visitors in the year 2025. The National Park Service would use monitoring to identify when demand would exceed existing carrying capacity. When thresholds were approached, the National Park Service would implement appropriate actions, such as coordinating with others to provide a shuttle service from offsite parking during busy periods or expanding the parking lot incrementally to help meet demands. This would ensure that ample access to the Wright Memorial was available.

At Huffman Prairie Flying Field and on the grounds of the Wright Memorial, monitoring would be used to identify areas of concern related to overuse, particularly in the Historic Landscape zone. Redirecting visitors from areas where social trails are developing or hardening selected social trails would improve the visual quality of the resource for visitors.

The effects of using carrying capacity to monitor and maintain the quality of the visitor experience would be long-term and beneficial. Perceptions would vary by individual, but usually would be seen as minor or moderate compared to Alternative A.

Effects on the Character of the Park. The new storage and maintenance facility would not be within the park boundary at The Wright Cycle Company complex and, at a distance of a block or two, may not even be visible from the park. Its effects on the park character compared to Alternative A would be negligible. Eliminating staff use of the second floor of The Wright Cycle Company building would eliminate a distraction to visitors. This would have a long-term, direct, beneficial, minor effect on the visitor experience.

Cumulative Impacts

Cumulative impacts of Alternative C would be much the same as Alternative A. However, because of its added emphasis on partnerships, programming, and outreach, Alternative C would be more effective in

contributing to the cumulative impact of the cultural resources of the Miami Valley.

Conclusions

Compared to Alternative A, this alternative would have major, long-term, direct and indirect, beneficial effects on visitor programming and community outreach.

Long-term, beneficial, direct and indirect effects of moderate intensity would result from the availability of additional parking at the Wright Memorial.

Long-term, beneficial, direct effects of minor to moderate intensity would result from the use of carrying capacities to ensure the quality of visitor experiences.

Minor, long-term, beneficial, direct and indirect effects would result from the availability of additional parking, toilets, and an interpretive kiosk at Huffman Prairie Flying Field; the improved continuity of the experience between the Wright Memorial and Huffman Prairie Flying Field; improved visitor access between these sites; and reduced distraction associated with changes in NPS use of The Wright Cycle Company building.

SUSTAINABILITY AND LONG-TERM MANAGEMENT

The Relationship between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

The intent of this determination is to identify whether Alternative C would result in trading the immediate use of the land for any long-term management possibilities or the productivity of park resources that would affect future generations. It is intended to determine whether Alternative C would be a sustainable action that could continue over the long-term without environmental problems.

Alternative C would be a sustainable action that would not change the use of Dayton Aviation Heritage National Historical Park or affect the long-term productivity of lands affected by its operation for future generations.

Any Irreversible or Irretrievable Commitments of Resources which Would Be Involved Should the Alternative Be Implemented

The intent of this evaluation is to identify whether this alternative would result in effects that could not be changed over the long term or would be permanent. An effect on a resource would be irreversible if the resource could not be reclaimed, restored, or otherwise returned to its condition before the disturbance. An irretrievable commitment of resources involves the effects on resources that, once gone, cannot be replaced or recovered.

Alternative C would not involve the irreversible or irretrievable commitment of resources. No environmental resources would experience major adverse impacts and no impairment of park resources would occur as a result of this alternative.

Any Adverse Impacts which Cannot Be Avoided Should the Action Be Implemented

The intent of this determination is to identify whether this alternative would result in impacts that could not be fully mitigated or avoided. The focus of this assessment is on real environmental issues that would involve major impacts if action was taken.

As described in the transportation analysis, Alternative C could have a major adverse effect on levels of service at the intersection of Kauffman Avenue and Ohio Highway

444. In response, the Ohio Department of Transportation would implement mitigating actions that would reduce the intensity to moderate (Ohio Department of Transportation, Hamilton 2004). However, these mitigation actions would not result in the level of service predicted for 2025 under Alternative A (see Table 25).

None of the other environmental effects identified in this assessment of Alternative C would be considered major adverse impacts. The implementation of this alternative for managing The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial would not result in impairment of any resources that would affect the basic purpose of Dayton Aviation Heritage National Historical Park.

CHAPTER 5: CONSULTATION AND COORDINATION

HISTORY OF PUBLIC INVOLVEMENT

INVOLVEMENT OF PARTNERS AND THE PUBLIC

As indicated in the "Formulation of Alternatives" section, the evolution of the proposed action, the alternatives for implementing the proposed action, and the environmental impact statement involved numerous consultations with park partners and interested members of the public. These included two multi-day workshops with legislated partners, in February and August 2003, to develop the alternatives.

A public scoping meeting was held the evening of December 4, 2002 at the Engineers Club at 110 East Monument Avenue, Dayton, Ohio. The meeting used a workshop format with brief presentations by the park superintendent and others on the goals of the planning process and the preliminary alternatives. Participants wrote down their issues of concern and attached them to maps of the park units. Citizens then met in breakout groups (based on color-coded name tags) to organize the issues associated with each park unit and present their findings to the entire meeting. Opportunities to provide additional comments via letter or the Internet also were publicized.

Earlier that day, an internal scoping meeting for park partners was held at the Engineers Club. Their issues were presented in an interactive format.

The major issues that were raised during scoping related to enhancing visitor enjoyment, facilitating transit and access to units, possible boundary adjustments, opportunities and benefits of partnerships, protecting the natural and cultural resources of the park, operational improvements, and the most appropriate uses of park buildings. These issues were used to develop the action alternatives and served as a basis for identifying the impact topics to be included in the environmental impact statement.

Three newsletters have been mailed to the public and posted on the Internet in association with this planning process:

- The Fall 2002 newsletter informed the public that the process of amending the park's general management plan was beginning, described current management and why an amendment was needed, and solicited citizen input in scoping. It included an announcement of the upcoming public scoping meeting.
- The Fall 2003 newsletter described the results of scoping and how the alternatives were formulated, and briefly presented the alternatives for managing The Wright Cycle Company complex, Huffman Prairie Flying Field, and the Wright Memorial. It also solicited public comments on the alternatives.
- The Summer 2004 newsletter provided a status update and informed citizens regarding how they could review a copy of the general management plan amendment and environmental impact statement.

The Wright Cycle Company complex and Paul Laurence Dunbar State Memorial units of the park are located within the low-income and minority communities of west Dayton. Therefore, in this and all other activities, the National Park Service has been proactive in involving its neighbors. Much of this process has included close coordination with Wright Dunbar, Inc., a citizens

group that is spearheading the redevelopment of the West Third Street corridor. Ohio Historical Society employees and volunteers at the Paul Laurence Dunbar State Memorial have long-term involvement in and proven commitment to the minority community and have been effective advocates for and interfaces with the sometimes reticent local citizens.

INVOLVEMENT OF OTHER AGENCIES

The Council on Environmental Quality (1978) regulations define the roles and responsibilities of agencies in preparing and reviewing documents for compliance with the National Environmental Policy Act. Under the Council on Environmental Quality regulations, the National Park Service is the lead agency for this environmental impact statement. The involvement of other agencies with this document is identified below.

The National Environmental Policy Act emphasizes agency cooperation. As a result, at the request of the lead agency, any other federal agency that has jurisdiction by law is a cooperating agency. Accordingly, the U.S. Air Force, represented by Wright-Patterson Air Force Base, is a cooperating agency.

Sections 1502.25 (Environmental Review and Consultation Requirements) and 1503.1 (Inviting Comments) of the Council on Environmental Quality (1978) regulations address review of an environmental impact statement by other agencies, organizations, and the public. Section 1503.2 (Duty to Comment) spells out the responsibility of federal environmental agencies to comment on such a document (recognizing that a federal agency may reply that it has no comment). The “List of Recipients” provided later in this section identifies the agencies to which the National Park Service has submitted this environmental impact statement for comment. This includes federal reviewing agencies and state and local agencies authorized to develop and enforce environmental standards.

LIST OF PREPARERS

GENERAL MANAGEMENT PLAN AMENDMENT PREPARERS

Name and Professional Discipline	Expertise and Experience
National Park Service, Dayton Aviation Heritage National Historical Park	
Lawrence Blake, Superintendent, Dayton Aviation Heritage National Historical Park	A.A. in history and B.A. in American history; 28 years working for the National Park Service, including 6 years as superintendent.
Ann Honious, Chief, Education and Resources Management, Dayton Aviation Heritage National Historical Park	B.A. in history/political science, M.A. in American studies; and M.A. in education; 12 years working for the National Park Service, including 10 years at Dayton Aviation Heritage National Historical Park
National Park Service, Midwest Region	
Sharon Miles, job captain/COTR and outdoor recreation planner	Master's degree in urban and regional planning and 4 years of experience as an NPS planner.
Parsons	
Maria Aguilar, graphic artist	Fourteen years of experience in graphic arts and computers.
Timberley Belish, environmental scientist	B.S. in biology, M.S. in aquatic ecology and evolution, and 15 years of experience with primary focus in park planning and management.
Janice Biletnikoff, planner	B.A. in psychology and 4 years of experience in planning.
W. Patrick Ditzel, document production specialist	Language and computer specialist with 33 years of experience.
John Hoesterey, project manager, planner, and facilitator	B.A. in zoology, M.A. in regional planning and economics, and 31 years of experience in planning, management, and facilitation.
Scott Lowry, editor	Ph.D. in English and 15 years of experience in the preparation of technical publications.
Janet Snyder, lead writer	B.S. in zoology and 30 years of experience in environmental compliance, planning, and documentation.
Bart Young, planner and facilitator	B.S. in forestry, M.S. in environmental studies and resource planning, and 35 years of experience in planning and facilitation.

GENERAL MANAGEMENT PLAN AMENDMENT CONSULTANTS

Name	Position and/or Affiliation
JoLynn Anderson	Base Community Planner (Civil Engineering), Wright-Patterson Air Force Base
Jack Darst	Aviation Trail, Inc.
Jan Ferguson, Ph.D.	Cultural Resources Program Manager, Wright-Patterson Air Force Base
Tim Good	Management Assistant, Dayton Aviation Heritage National Historical Park
Judi Hart	Education Specialist, Dayton Aviation Heritage National Historical Park
Alex Heckman	Director of Education, Carillon Historical Park
Mike Howe	Program Manager for Environmental Issues within

	Civil Engineering, Wright-Patterson Air Force Base
Kevin Kessler	Intern Engineer, Dayton Aviation Heritage National Historical Park
Mary Mathews	Executive Director, Carillon Historical Park
Roger McClure	Aviation Trail, Inc.
Gary Ness	Director, Ohio Historical Society
Thomas Perdue	Environmental Impact Analysis Program Manager, Wright-Patterson Air Force Base
Anthony Perfilio	Dayton Aviation Heritage Commission
Glenn Peters	Director of Museums, Ohio Historical Society
LaVerne Sci	Site Manager, Paul Laurence Dunbar State Memorial
Anthony Sculimbrene	Executive Director, Dayton Aviation Heritage Commission
Gerald Sharkey	Aviation Trail, Inc.
Leonard Simpson	Facility Manager, Dayton Aviation Heritage National Historical Park
Connie Strobbe	Former Environmental Impact Analysis Program Manager, Wright-Patterson Air Force Base
Rachael Tooker	Deputy Director and Chief Operating Officer, Ohio Historical Society
Cairon Walker	Transportation Intern, Dayton Aviation Heritage National Historical Park
Sändra Washington	Chief of Planning and Compliance, National Park Service, Midwest Region

LIST OF RECIPIENTS

Federal Agencies

Representative John Boehner
Senator Michael DeWine
Representative David Hobson
Mr. Don Klima, Director, Advisory Council on Historic Preservation
Mr. Ken Lammers, U.S. Fish and Wildlife Service, Ecological Services
Maj. Gen. Charles Metcalf, Director, National Museum of the United States Air Force
National Park Service, Midwest Archeological Center
Representative Michael Oxley
Tom Perdue, U.S. Air Force, Wright-Patterson Air Force Base
Representative Rob Portman
Representative Michael Turner
Senator George Voinovich
Mr. Ken Westlake, US Environmental Protection Agency, Region 5

State and Local Agencies

State Representative Dixie Allen
State Senator Stephen Austria
City Commission, City of Dayton
City of Fairborn
Dayton-Montgomery County Convention and Visitors Bureau
State Representative Kevin DeWine
City Manager Jim Dineen, City of Dayton
Mr. Richard L. Doran, Miami Conservancy District
Mr. Mark Epstein, Ohio Historic Preservation Office, Department Head, Resource Protection and Review
Five Rivers MetroParks
Greater Dayton Regional Transit Authority
Green County Commission
Greene County Convention and Visitors Bureau
Greene County Park District
Mr. Burch Grieszmer, Ohio Department of Natural Resources, Division of Natural Areas and Preserves

Mr. Stephen P. Lake, Governor's Regional Economic Development Representative
Mayor Rhine McLin, City of Dayton
Miami Valley Regional Planning Commission
Montgomery County Commission
Ohio Department of Transportation, Central Office
Ohio Department of Transportation, District 7
Ohio Department of Transportation, District 8
Ohio Historical Society
State Senator Tom Roberts
State Representative Fred Strahorn
Governor Bob Taft

Organizations

Ms. Marty Anderson, Wolf Creek Neighborhood Association
Carillon Historical Park
Mr. Marvin Christian, Aviation Trail, Inc.
CityWide Development Corporation
Dayton Chamber of Commerce
Dayton Development Coalition
Downtown Dayton Partnership
Ms. Mary Ellington, President, Wright Dunbar Neighborhood Association
Mr. Glen Howarth, Delphi
InnerWest Priority Board
Mr. Dan Jackson, Delphi
Mr. Brent Lange, Delphi
Mr. Marc Martens, Delphi
Mathile Family Foundation
National Aviation Hall of Fame
Mr. Tony Sculimbrene, Aviation Heritage Foundation
Mr. Don Sokol, Delphi
Mr. Robert Walker, Delphi
Mr. James Walle, Delphi
Woodland Cemetery and Arboretum
Wright B. Flyer, Inc.
Wright Dunbar, Inc.

Individuals

Amanda Wright Lane
Judge Walter Rice
Mr. J. Bradford Tillson, Jr.
Stephen Wright

RESPONSE TO COMMENTS

This section will be added in the final general management plan amendment and environmental impact statement.

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CHAPTER 6: BIBLIOGRAPHY AND APPENDIXES

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APPENDIXES

APPENDIX A: DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK LEGISLATION

3. Dayton Aviation Heritage

PUBLIC LAW 102–419—OCT. 16, 1992 106 STAT. 2141

Public Law 102–419
102d Congress

An Act

To establish the Dayton Aviation Heritage National Historical Park in the State of Ohio, and for other purposes.

Oct. 16, 1992
[H.R. 2321]

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

Dayton Aviation Heritage Preservation Act of 1992.
Conservation.
16 USC 410ww note.

SECTION 1. SHORT TITLE.

This Act may be cited as the "Dayton Aviation Heritage Preservation Act of 1992".

16 USC 410ww note.

SEC. 2. PURPOSES.

The purposes of this Act are—

(1) to establish a unit of the National Park System in Dayton, Ohio, consisting of certain lands and structures associated with Wilbur and Orville Wright and the early development of aviation; and

(2) to create partnerships among Federal, State, and local governments and the private sector to preserve, enhance, and interpret for present and future generations the historic and cultural structures, districts, and artifacts in Dayton and the Miami Valley in the State of Ohio, which are associated with the Wright brothers, the invention and development of aviation, or the life and works of Paul Laurence Dunbar, and which, as a whole, represent a nationally significant resource.

TITLE I—DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK

16 USC 410ww note.

SEC. 101. ESTABLISHMENT OF THE DAYTON AVIATION HERITAGE NATIONAL HISTORICAL PARK.

(a) ESTABLISHMENT.—There is established, as a unit of the National Park System in the State of Ohio, the Dayton Aviation Heritage National Historical Park (hereinafter in this Act referred to as the "park").

(b) AREA INCLUDED.—The park shall consist of the following sites, as generally depicted on a map entitled "Proposed Dayton Aviation Heritage National Historical Park", numbered NHP–DAH 80,000, and dated February 1992:

(1) A core parcel in Dayton, Ohio, which shall consist of the Wright Cycle Company Building, Hoover Block, and lands between.

(2) Huffman Prairie Flying Field, Wright-Patterson Air Force Base, Ohio.

(3) The Wright 1905 Flyer and Wright Hall, Dayton, Ohio.

(4) The Paul Laurence Dunbar home, Dayton, Ohio.

16 USC 410ww-1.

SEC. 102. PROTECTION OF HISTORIC PROPERTIES.

(a) ACQUISITION OF PROPERTIES WITHIN THE PARK.—Within the boundaries of the park the Secretary shall, subject to the availability of appropriated funds, acquire the Wright Cycle Company Building and Hoover Block, and may acquire other properties, or interests therein, referred to in section 101(b), by donation, purchase with donated or appropriated finds, exchange, or transfer.

(b) COOPERATIVE AGREEMENTS.—The Secretary is authorized to enter into cooperative agreements with other Federal agencies, State and local public bodies, and private interests and organizations relating to the preservation, development, use, and interpretation of properties within the boundaries of the park in order to contribute to the appropriate use and management of such properties consistent with the purposes of this Act. Such agreements shall provide, whenever appropriate, that—

(1) the public may have access to any such property at specified reasonable times for purposes of viewing such property or the exhibits or attending programs established by the Secretary under this subsection; and

(2) the Secretary may make such improvements to any such property as the Secretary deems necessary after consultation with the Commission to enhance the public use and enjoyment of such property and programs.

16 USC 410ww-2.

SEC. 103. PARK GENERAL MANAGEMENT PLAN.

(a) IN GENERAL.—Not later than 3 complete fiscal years after the date of enactment of this Act, the Secretary, with the advice of the Commission, shall prepare and submit to the Congress a general management plan for the park which includes but is not limited to the information described in section 12(b) of the Act of August 18, 1970 (16 U.S.C. 1a–7(b)), and which takes into account the preservation and development plan developed under section 202.

(b) PARK PARTNERSHIPS.—The management plan shall identify partnership opportunities between the Secretary and other Federal, State, and local governments and the private sector for the development, use, and interpretation of properties within the park.

16 USC 410ww-3.

SEC. 104. STUDIES.

The Secretary shall study the following properties to determine the feasibility and suitability of including them within the park:

(1) Properties within the Wright-Dunbar Historic District.

Reports.

(2) Wright Company Factory, Dayton, Ohio. A report of the study of such properties shall be submitted as part of the general management plan required by section 103.

16 USC 410ww-4.

SEC. 105. GENERAL ADMINISTRATIVE FUNCTIONS.

(a) IN GENERAL.—The park shall be administered in accordance with this Act and with the provisions of law generally applicable to units of the National Park System, including, but not limited to, the Act entitled "An Act to establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat. 535; 16 U.S.C. 1–4).

(b) DONATIONS.—The Secretary may accept donations of funds, property, or services from individuals, foundations, corporations, and other private entities, and from public entities, for the purposes of managing the park.

(c) PROGRAMS.—The Secretary may sponsor, coordinate, or enter into cooperative agreements for educational or cultural programs related to the park as the Secretary considers appropriate to carry out the purposes of this Act.

(d) IDENTIFICATION AND MARKING OF SIGNIFICANT HISTORICAL SITES.—The Secretary may identify other significant sites related to the Wright brothers, the history of aviation, or Paul Laurence Dunbar in the Miami Valley which are related to the park, and, with the consent of the owner or owners thereof, may mark the sites appropriately and make reference to them in any interpretive literature. The Secretary may provide interpretive markers along transportation routes leading to units of the park.

(e) INTERPRETATION OF HUFFMAN PRAIRIE FLYING FIELD.—The Secretary may provide interpretation of Huffman Prairie Flying Field on Wright Brothers Hill, Wright-Patterson Air Force Base, Ohio.

SEC. 106. COOPERATION OF FEDERAL AGENCIES.

16 USC 410ww-5.

Any Federal entity conducting or supporting activities directly affecting the park shall—

(1) consult with, cooperate with, and to the maximum extent practicable, coordinate its activities with the Secretary; and

(2) conduct or support such activities in a manner which—

(A) to the maximum extent practicable is consistent with the standards and criteria established pursuant to section 202(b)(9); and

(B) to the maximum extent practicable will not have an adverse effect on the historic resources of the park.

SEC. 107. COORDINATION BETWEEN THE SECRETARY AND THE SECRETARY OF DEFENSE.

16 USC 410ww-6.

The decisions concerning the execution of this Act as it applies to properties under control of the Secretary of Defense shall be made by such Secretary, in consultation with the Secretary of Interior.

SEC. 108. ASSISTANCE.

16 USC 410ww-7.

(a) TECHNICAL AND PRESERVATION ASSISTANCE.—The Secretary may provide to any owner of property within the park, and to any organization having an agreement with the Secretary under section 102(b), such technical assistance as the Secretary considers appropriate to carry out the purposes of this Act.

(b) INTERPRETATIVE MATERIALS.—The Secretary is authorized to publish interpretative materials for historic aviation resources in the Miami Valley.

SEC. 109. AUTHORIZATION OF APPROPRIATIONS.

16 USC 410ww-8.

There is authorized to be appropriated such sums as may be necessary to carry out this title: *Provided*, That the amount to be appropriated for the operation, development or restoration of non-federally owned properties within the boundaries of the park shall not exceed $200,000.

TITLE II—DAYTON AVIATION HERITAGE COMMISSION

16 USC 410ww-21.

SEC. 201. DAYTON AVIATION HERITAGE COMMISSION.

(a) ESTABLISHMENT.—There is established the Dayton Aviation Heritage Commission to assist Federal, State, and local authorities and the private sector in preserving and managing the historic resources in the Miami Valley, Ohio, associated with the Wright brothers, aviation, or Paul Laurence Dunbar.

(b) MEMBERSHIP.—The Commission shall consist of 13 members as follows:

(1) 3 members appointed by the Secretary, who shall have demonstrated expertise in aviation history, black history and literature, aviation technology, or historic preservation, at least one of whom shall represent the National Park Service.

(2) 3 members appointed by the Secretary from recommendations submitted by the Governor of the State of Ohio, who shall have demonstrated expertise in aviation history, black history and literature, aviation technology, or historic preservation, at least one of whom shall represent the Ohio Historical Society.

(3) 1 member appointed by the Secretary of Defense, who shall represent Wright-Patterson Air Force Base.

(4) 3 members appointed by the Secretary from recommendations submitted by the City Commission of Dayton, Ohio, at least one of whom shall reside near the core parcel of the park (as described in section 101(b)(1)).

(5) 1 member appointed by the Secretary from recommendations submitted by the Board of Commissioners of Montgomery County, Ohio.

(6) 1 member appointed by the Secretary from recommendations submitted by the Board of Commissioners of Greene County, Ohio.

(7) 1 member appointed by the Secretary from recommendations submitted by the City Council of Fairborn, Ohio.

(c) TERMS.—(1) Members shall be appointed for terms of 3 years. A member may be reappointed only 3 times unless such member was originally appointed to fill a vacancy pursuant to subsection (e)(1), in which case such member may be reappointed 4 times. A member may serve after the expiration of his term until a successor is appointed.

(2) The Secretary shall appoint the first members of the Commission within 30 days after the date on which the Secretary has received all of the recommendations for appointment pursuant to subsections (b) (2), (4), (5), (6), and (7).

(d) CHAIR AND VICE CHAIR.—The chair and vice chair of the Commission shall be elected by the members of the Commission. The terms of the chair and vice chair shall be 2 years. The vice chair shall serve as chair in the absence of the chair.

(e) VACANCY.— (1) Any vacancy in the Commission shall be filled in the same manner in which the original appointment was made, except that the Secretary responsible for such appointment shall fill any such vacancy within 30 days after receiving a recommendation for the position.

(2) A member appointed to fill a vacancy shall serve for the remainder of the term for which his predecessor was appointed.

A member may serve after the expiration of his term until his successor has taken office.

(f) QUORUM.—A majority of the members of the Commission then serving shall constitute a quorum, but a lesser number may hold hearings.

(g) MEETINGS.—The Commission shall meet not less than 3 times a year at the call of the chair or a majority of its members.

(h) PAY.—(1) Except as provided in paragraph (2), members of the Commission shall serve without pay.

(2) Members of the Commission who are full–time officers or employees of the United States shall receive no additional pay by reason of their service on the Commission.

(3) While away from their homes or regular places of business in the performance of services for the Commission, members of the Commission shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in the Government service are allowed expenses under section 5703 of title 5, United States Code.

(i) FACA.—Section 14(b) of the Federal Advisory Committee Act (5 U.S.C. App.) shall not apply to the Commission.

(j) TERMINATION.—The Commission shall cease to exist on January 1, 2004.

SEC. 202. DAYTON HISTORIC RESOURCES PRESERVATION AND DEVELOPMENT PLAN.

16 USC 410ww-22.

(a) IN GENERAL.—Within 2 years after the date on which the Commission conducts its first meeting, the Commission shall submit to the Secretary a preservation and development plan which may include the Wright-Dunbar Historic District, the Dunbar Historic District, the Ed Sines House and the Daniel Fitch House, and the 45 sites identified in Appendix A of the document entitled "Study of Alternatives Dayton's Aviation Heritage, Ohio" published by the National Park Service. Within 90 days after the receipt of such plan, the Secretary shall approve such plan or return it with comments to the Commission. If the Secretary has taken no action after 90 days upon receipt, the plan shall be considered approved. If the Secretary disapproves a plan, the Commission shall submit a revised plan to the Secretary. The plan shall include specific preservation and interpretation goals and a priority timetable for their achievement. The Secretary shall forward copies of the approved plan to the Congress.

(b) CONTENTS OF PLAN.—The plan referred to in subsection (a) shall—

(1) set detailed goals for the preservation, protection, enhancement, and utilization of the resources of sites referred to in subsection (a);

(2) identity properties which should be preserved, restored, developed, maintained, or acquired;

(3) include a tentative budget for the subsequent five fiscal years;

(4) propose a management strategy for a permanent organizational structure to enhance and coordinate such resources, and aviation-related properties, and institutions;

(5) recommend methods for establishing partnerships with Federal, State, and local governments and the private sector to foster development and to preserve and enhance such resources;

(6) propose transportation links, including pedestrian facilities and bicycle trails among historic aviation sites including an interurban between the Wright-Dunbar Historic District and the historic resources at Wright-Patterson Air Force Base;

(7) address the use of private vehicles, traffic patterns, parking, and public transportation;

(8) propose educational and cultural programs to encourage appreciation of such resources;

(9) establish standards and criteria applicable to the construction, preservation, restoration, alteration, and use of the properties among such resources;

(10) establish an index which shall contain documentary evidence of historical and cultural significance and which includes property in the Miami Valley associated with the Wright brothers, the history of aviation, or Paul Laurence Dunbar.

(c) CONSULTATION.—In developing the plan, the Commission shall consult with appropriate officials of any local government or Federal or State agency which has jurisdiction over historic aviation resources in the Miami Valley area. The Commission shall also consult with property owners and business, historic, professional, neighborhood, and citizen organizations affected by the actions proposed in the plan.

16 USC 410ww-23.

SEC. 203. GENERAL POWERS OF THE COMMISSION.

(a) HEARINGS.—The Commission may hold such hearings, sit and act at such times and places, take such testimony, and reserve such evidence as the Commission may deem advisable.

(b) DONATIONS.—Notwithstanding any other provision of law, the Commission may seek and accept donations of funds, property, or service from individuals, foundations, corporations, and other private entities and public entities for the purpose of carrying out its duties.

(c) USE OF FUNDS TO OBTAIN MONEY.—The Commission may use its funds to obtain money from any source under any program or law requiring the recipient of such money to make a contribution in order to receive such money.

(d) MAIL.—The Commission may use the United States mails in the same manner and upon the same conditions as other departments and agencies of the United States.

(e) USES OF ACQUIRED ASSETS.—Any revenues or other assets acquired by the Commission by donations, the lease or sale of property, or fees for services shall be available to the Commission, without fiscal year limitations, to be used for any function of the Commission.

(f) HISTORICAL AND CULTURAL PROGRAMS.—The Commission is authorized to carry out historical, educational, or cultural programs which encourage or enhance appreciation of the historic resources in the Miami Valley associated with the Wright brothers, aviation, or the life and works of Paul Laurence Dunbar.

(g) TECHNICAL AND PRESERVATION ASSISTANCE.—The Commission may provide technical and preservation assistance to owners of property within the districts, sites, and properties referred to in section 202(a) consistent with the purposes of this Act.

(h) OBTAINING PROPERTY.—(1) The Commission may obtain by purchase, rental, donation, or otherwise, such property, facilities, and services as may be needed to carry out its duties except that

the Commission may not acquire real property or interest in real property otherwise than under paragraph (2).

(2) Subject to paragraph (3), the Commission may acquire real property, or interests in real property, in the districts, sites, and properties referred to in section 202(a)—

(A) by gift or devise; or

(B) by purchase from a willing seller with money which was given or bequeathed to the Commission on the condition that such money would be used to purchase real property, or interests in real property, in such district and sites.

(3) Any real property or interest in real property acquired by the Commission under paragraph (2) shall be conveyed by the Commission to an appropriate public agency, as determined by the Commission. Any such conveyance shall be made—

(A) as soon as practicable after such acquisition;

(B) without consideration; and

(C) on the condition that the real property or interest in real property so conveyed is used for public purposes.

SEC. 204. STAFF OF COMMISSION.

16 USC 410ww-24.

(a) DIRECTOR.—The Commission shall have a Director who shall be appointed by the Commission.

(b) ADDITIONAL PERSONNEL.—The Commission may appoint and fix the pay of such additional personnel as the Commission deems necessary. Such staff may include specialists in areas such as interpretation, historic preservation, black history and literature, aviation history and technology, and urban revitalization.

(c) TEMPORARY SERVICES.—Subject to such rules as may be adopted by the Commission, the Commission may procure temporary and intermittent services to the same extent as is authorized by section 3109(b) of title 5, United States Code, but at rates determined by the Commission to be reasonable.

(d) DETAIL.—Upon request of the Commission, the head of any Federal agency represented by a member on the Commission may detail, on a reimbursable basis, any of the personnel of such agency to the Commission to assist it in carrying out its duties under this Act.

(e) ADMINISTRATIVE SUPPORT.—The Administrator of the General Services Administration shall provide to the Commission on a reimbursable basis such administrative support services as the Commission may request.

(f) STATE AND LOCAL SERVICES.—The Commission may accept the services of personnel detailed from the State or any political subdivision of the State and may reimburse the State or such political subdivision for such services.

(g) INAPPLICABILITY OF CERTAIN PROVISIONS OF TITLE 5, UNITED STATES CODE.—The director and staff of the Commission may be appointed without regard to the provisions of title 5, United States Code, governing appointments in the competitive service, and may be paid without regard to the provisions of chapter 51 and subchapter III of chapter 53 of such title relating to classification and General Schedule pay rates, except that no individual so appointed may receive pay in excess of the annual rate of basic pay payable for grade GS–15 of the General Schedule.

16 USC 410ww-25.

SEC. 205. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated annually to the Commission to carry out its duties under this Act $350,000, except that the Federal contribution to the Commission shall not exceed 50 percent of the annual costs to the Commission in carrying out those duties.

Approved October 16, 1992.

LEGISLATIVE HISTORY—H.R. 2321:
HOUSE REPORTS: No. 102-449 (Comm. on Interior and Insular Affairs).
CONGRESSIONAL RECORD, Vol. 138 (1992):
Mar. 3, 4, considered and passed House.
Sept. 9, considered and passed Senate, amended.
Sept. 10, Senate vitiated passage.
Oct. 1, considered and passed Senate, amended.
Oct. 4, House concurred in Senate amendments.
WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS, Vol. 28 (1992):
Oct. 16, Presidential statement.

Public Law 106–356
106th Congress

An Act

To amend the Dayton Aviation Heritage Preservation Act of 1992 to clarify the areas included in the Dayton Aviation Heritage National Historical Park and to authorize appropriations for that park.

Oct. 24, 2000

[H.R. 5036]

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

Dayton Aviation Heritage Preservation Amendments Act of 2000.
16 USC 410ww note.

SECTION 1. SHORT TITLE.

This Act may be cited as the "Dayton Aviation Heritage Preservation Amendments Act of 2000".

SEC. 2. REVISION OF DAYTON AVIATION HERITAGE PRESERVATION ACT OF 1992.

(a) AREAS INCLUDED IN PARK.—Section 101(b) of the Dayton Aviation Heritage Preservation Act of 1992 (16 U.S.C. 410ww(b)) is amended to read as follows:

"(b) AREAS INCLUDED.—The park shall consist of the following sites, as generally depicted on a map entitled 'Dayton Aviation Heritage National Historical Park', numbered 362–80,010 and dated September 1, 2000:

Ohio

"(1) A core parcel in Dayton, Ohio, which shall consist of the Wright Cycle Company building, Hoover Block, and lands between.

"(2) The Setzer building property (also known as the Aviation Trail building property), Dayton, Ohio.

"(3) The residential properties at 26 South Williams Street and at 30 South Williams Street, Dayton, Ohio.

"(4) Huffman Prairie Flying Field, located at Wright-Patterson Air Force Base, Ohio.

"(5) The Wright 1905 Flyer III and Wright Hall, including constructed additions and attached structures, known collectively as the John W. Berry, Sr. Wright Brothers Aviation Center, Dayton, Ohio.

"(6) The Paul Laurence Dunbar State Memorial, Dayton, Ohio.".

(b) AUTHORIZATION OF APPROPRIATIONS.—Section 109 of such Act (16 U.S.C. 410ww–8) is amended by striking the colon after "title" and all that follows through the end of the sentence and inserting a period.

(c) TECHNICAL CORRECTION.—Section 107 of such Act (16 U.S.C. 410ww–6) is amended by striking "Secretary of Interior" and inserting "Secretary of the Interior".

Approved October 24, 2000.

LEGISLATIVE HISTORY—H.R. 5036 (S. 2959):

HOUSE REPORTS: No. 106–896 (Comm. on Resources).
SENATE REPORTS: No. 106–443 accompanying S. 2959 (Comm. on Energy and Natural Resources).
CONGRESSIONAL RECORD, Vol. 146 (2000):
Sept. 26, considered and passed House.
Oct. 5, considered and passed Senate.

○

APPENDIX B: OTHER RELEVANT LEGISLATION AND EXECUTIVE ORDERS

National Park Service Enabling Legislation and Park Management

Act of August 25, 1916 (National Park Service Organic Act), Public Law (P.L.) 64-235, 16 United States Code (U.S.C.) Section (§)1 *et sequens* (*et seq*. (and the following ones)) as amended

Reorganization Act of March 3, 1933, 47 Statute (Stat.) 1517

General Authorities Act, October 7, 1976, P.L. 94-458, 90 Stat. 1939, 16 U.S.C. §1a-1 *et seq.*

Act amending the Act of October 2, 1968 (commonly called Redwoods Act), March 27, 1978, P.L. 95-250, 92 Stat. 163, 16 U.S.C. Subsection(s) (§§) 1a-1, 79a-q

National Parks and Recreation Act, November 10, 1978, P.L. 95-625, 92 Stat. 3467; 16 U.S.C. §1 *et seq*.

National Parks Omnibus Management Act of 1998, 16 U.S.C. 5901 through 60116; P.L. 105-391

National Park System General Authorities Act, 16 U.S.C. §1a-1 *et seq*.; P.L. 91-383, 94-458, 95-2508

National Park System Resource Protection Act, 16 U.S.C. §19jj through 19jj-4; P.L. 101-337, 104-333

Other Laws Affecting NPS Operations

Accessibility

Americans with Disabilities Act of 1990 (ADA), P.L. 101-336, 104 Stat. 327, 42 U.S.C. §12101

Architectural Barriers Act of 1968, P.L. 90-480, 82 Stat. 718, 42 U.S.C. §4151 *et seq.*

Rehabilitation Act of 1973, P.L. 93-112, 87 Stat. 357, 29 U.S.C. §701 *et seq*. as amended by the Rehabilitation Act Amendments of 1974, 88 Stat. 1617

Cultural Resources

American Indian Religious Freedom Act, P.L. 95-341, 92 Stat. 469, 42 U.S.C. §1996

Antiquities Act of 1906, P.L. 59-209, 34 Stat. 225, 16 U.S.C. §431 through 433 and 43 *Code of Federal Regulations* 3

Archeological and Historic Preservation Act of 1974, P.L. 93-291, 88 Stat. 174, 16 U.S.C. §469

Archeological Resources Protection Act of 1979 (ARPA), P.L. 96-95, 93 Stat. 712, 16 U.S.C. §470aa through 470mm and 43 *Code of Federal Regulations* 7, subparts A and B, 36 *Code of Federal Regulations* 79

Executive Order 13007: Indian Sacred Sites

Historic Sites, Buildings and Antiquities Act, 16 U.S.C. 461 through 467; Aug. 21, 1935, ch. 593, 49 Stat. 666

National Historic Preservation Act (NHPA) as amended, P.L. 89-665, 96-515, 80 Stat. 915, 16 U.S.C. §470 through 470x-6 and 36 *Code of Federal Regulations* 18, 60, 61, 63, 68, 79, 800

Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C. §3001 through 3013; P.L. 101-601

Protection of Historic and Cultural Properties, Executive Order (E.O.) 11593; 36 *Code of Federal Regulations* 60, 61, 63, 800; 44 *Federal Register* 6068

Public Buildings Cooperative Use Act of 1976, P.L. 94-541, 90 Stat. 2505, 42 U.S.C. §4151-4156

Natural Resources

Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act, Environmental Statement Memorandum (E.S.) 80-3, 08/11/80, 45 *Federal Register* 59109

Clean Air Act as amended, P.L. 88-206 Chapter 360, 69 Stat. 322, 42 U.S.C. §7401 through 7671q *et seq*.

Coastal Zone Management Act of 1972 as amended, P.L. 92-583, 86 Stat. 1280, 16 U.S.C. §1451 *et seq*.

Endangered Species Act of 1973, as amended, P.L. 93-205, 87 Stat. 884, 16 U.S.C. §1531 through 1544 *et seq*.

Executive Order 11988: Floodplain Management, May 24, 1977, 42 *Federal Register* 26951, as amended by Executive Order. 12148, July 20, 1979, 44 *Federal Register* 43239 [42 U.S.C. 4321], 3 *Code of Federal Regulations* 121 (Supplement (Supp) 177)

Executive Order 11990: Protection of Wetlands, May 24, 1977, 42 *Federal Register* 26961, as amended by Executive Order 12608, Sept. 9, 1987, 52 *Federal Register* 34617, [42 U.S.C. 4321], 3 *Code of Federal Regulations* 121 (Supp 177)

Executive Order 11991: Protection and Enhancement of Environmental Quality

Executive Order 13112: Invasive Species, February 3, 1999, 64 *Federal Register* 6183

Executive Order 13123: Greening the Government Through Efficient Energy Management, June 3, 1999, 64 *Federal Register* 30851

Executive Order 13148: Greening the Government Through Leadership in Environmental Management, April 21, 2000, 65 *Federal Register* 24595

Executive Order 13175: Consultation and Coordination with Indian Tribal Governments, November 6, 2000, 65 *Federal Register* 67249 [25 U.S.C. 450]

Federal Insecticide, Fungicide, and Rodenticide Act, P.L. 92-516, 86 Stat. 973, 7 U.S.C. §136 *et seq*.

Federal Water Pollution Control Act (commonly referred to as Clean Water Act), P.L. 92-500 as amended by the Clean Water Act, P.L. 95-217, 33 U.S.C. §1251 through 1387

Fish and Wildlife Coordination Act of 1958 as amended, P.L. 85-624, 72 Stat. 563, 16 U.S.C. §661 *et seq*.

Manguson Fishery Conservation and Management Act of 1976, P.L. 94-625, 90 Stat. 331m 16 U.S.C. §1801 *et seq*.

Migratory Bird Conservation Act, P.L. Chapter 257, 45 Stat. 1222, 16 U.S.C. §715 *et seq*.

Migratory Bird Treaty Act of 1918, P.L. 186, 40 Stat. 755

National Environmental Policy Act of 1969 (NEPA), P.L. 91-190, 83 Stat. 852, 42 U.S.C. §4321 through 4370d.

National Park System Final Procedures for Implementing E.O. 11988 and 11990 (45 *Federal Register* 35916 as revised by 47 *Federal Register* 36718)

Protection and Enhancement of Environmental Quality, E.O. 11514 as amended, 1970, E.O. 11991, 35 *Federal Register* 4247; 1977, 42 *Federal Register* 26967)

Resource Conservation and Recovery Act, P.L. 94-580, 30 Stat. 1148, 42 U.S.C. §6901 *et seq*.

Rivers and Harbors Act of 1899, 33 U.S.C. Chapter 425, as amended by P.L. 97-332, October 15, 1982 and P.L. 97-449, 33 U.S.C. §§401-403

Water Resources Planning Act of 1965 (P.L. 89-80, 42 U.S.C. § 1962 *et seq*.) and Water Resource Council's Principles and Standards, 44 *Federal Register* 723977

Watershed Protection and Flood Prevention Act, P.L. 92-419, 68 Stat. 666, 16 U.S.C. §100186

Other

Administrative Procedures Act (APA), June 11,1946, 5 U.S.C. § 551-559, §§701-706, 60 Stat. 237

Concessions Policy Act of 1965, P.L. 89-249, 79 Stat. 969, 16 U.S.C. § 20 *et seq*.

Department of Transportation Act of 1966, P.L. 89-670, 80 Stat. 931, 49 U.S.C. § 303

Energy Policy Act of 1992, 42 U.S.C. 13201 through 13556; P.L. 102-486

Energy Supply and Environmental Coordination Act of 1974

Executive Order 12003: Energy Policy and Conservation, 3 *Code of Federal Regulations* 134 (Supp 1977), 42 U.S.C. § 2601

Executive Order 12008: Federal Compliance with Pollution Control Standards

Executive Order 12372: Intergovernmental Review of Federal Programs, 47 *Federal Register* 30959

Forest and Rangeland Renewable Resources Planning Act, P.L. 95-307, 92 Stat. 353, 16 U.S.C. §1600 *et seq*.

Freedom of Information Act, P.L. 93-502, 5 U.S.C. §552 *et seq*.

Government Performance and Results Act of 1993 (GPRA), 31 U.S.C. 1115 *et seq*. 4; P.L. 103-62

Intergovernmental Cooperation Act of 1968, P.L. 90-577, 40 U.S.C. §§ 531-535 and 31 U.S.C. §§6501-6508

Intergovernmental Coordination Act of 1969, 42 U.S.C. §§4101, 4231, 4233

Noise Control Act of 1972 as amended, P.L. 92-574, 42 U.S.C. §4901 *et seq*.

Occupational Safety and Health Act of 1970, 29 U.S.C. §651 through 678; P.L. 91-5969

Outdoor Recreation Coordination Act of 1963, P.L. 88-29, 77 Stat. 49

Payment in Lieu of Taxes Act, P.L. 94-565, 90 Stat. 2662, 31 U.S.C. §6901 *et seq*.

Sikes Act, P.L. 86-797, 74 Stat. 1052, 16 U.S.C. §670a-670o, as amended.

Surface Transportation Assistance Act of 1982, 96 Stat. 2097, 23 U.S.C. §§101 and many others

Wildfire Disaster Recovery Act, P.L. 101-286

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

NPS November 2005

National Park Service
U.S. Department of the Interior

Dayton Aviation Heritage National Historical Park
P.O. Box 9280
Wright Brothers Station
Dayton, Ohio 45409-9280

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