

Alternatives



Chapter Two

ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE



THIS CHAPTER BEGINS by explaining how the range of alternatives was formulated, how the environmentally preferred alternative was identified, how the preferred alternative was determined, the role that boundary assessment played in the planning process, and how user-capacity standards and indicators were developed. Most of this chapter is dedicated to describing the management areas and the alternative futures for the Ice Age Complex. This chapter concludes with tables that summarize the key differences between the alternatives and the environmental impacts that could result from implementing any of the alternatives.

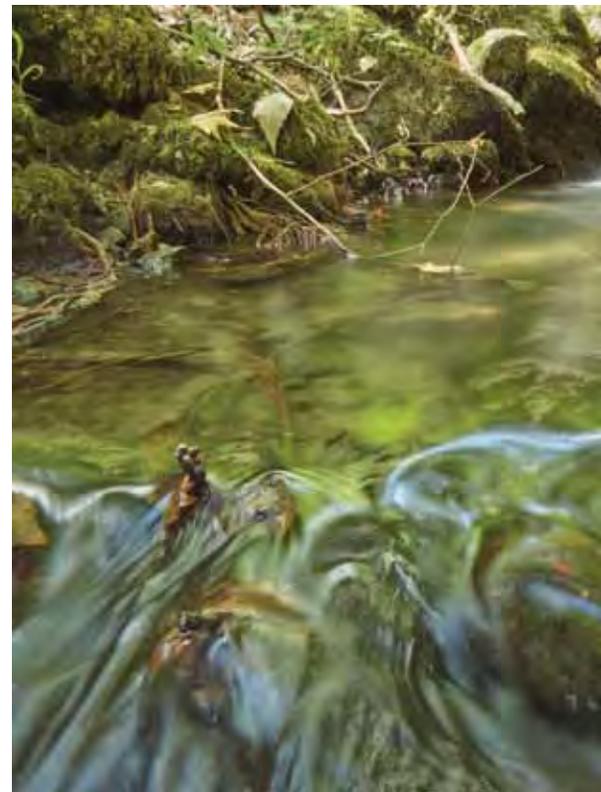
FORMULATION OF THE ALTERNATIVES

Many aspects of the desired future condition of the Ice Age Complex are defined in the laws establishing the Ice Age National Scientific Reserve and the Ice Age National Scenic Trail, as well as in the foundation statement for the complex described earlier in chapter 1. Within these parameters, the National Park Service and the Wisconsin Department of Natural Resources solicited input from the public regarding issues and desired conditions for the complex.

Taking public input into account, the planning team developed a set of five management areas and four preliminary alternative futures for the complex. A fifth alternative, the preferred alternative, was later developed after a detailed value analysis was completed. The analysis considered public feedback on the four preliminary alternatives, as well as specific costs and benefits.



Fresh glacial trout stream.



This general management plan / environmental impact statement provides a framework within which managers of the Ice Age Complex would make decisions to guide the management of the complex for the next 15 to 20 years. It is important to allow flexibility for necessary future management actions, so the alternatives in this plan focus on *what* resource conditions would be provided and *what* visitor experiences would be offered, not on *how* these conditions and experiences would be achieved. There is more than one way to manage park resources, address planning issues, achieve the purpose, maintain significance, and preserve the fundamental resources and values. Mindful of the need for flexibility, this planning process considered a range of alternatives, beginning with a “no-action” alternative under which the current management of the complex would continue as is. The no-action alternative is followed by a range of potential management alternatives called “action” alternatives.

The action alternatives indicate how site management would change in different ways by applying management areas (descriptions of distinct sets of resource conditions and visitor experiences) to maps of the complex to define management intent for resource conditions and visitor experiences for each location. The application and configuration of the management areas vary by alternative, depending on the intent of the alternative concept. It may help to think of the management areas as the colors an artist will use to paint a picture. The alternatives in this document are the different pictures that could be painted with the colors (management areas) available. Each of the alternatives has an overall management concept and a description of how different areas of the site could be managed (management areas and related actions). The concept for each alternative gives the artist (or in this case, the planning team) the idea for what the picture (alternative) is going to look like.

IDENTIFICATION OF THE PREFERRED ALTERNATIVE AND ENVIRONMENTALLY PREFERRED ALTERNATIVE

The CEQ regulations for implementing the *National Environmental Protection Act* require that a preferred alternative be identified in an environmental impact statement. These same regulations also require that an environmentally preferred alternative be identified, which is often, but not always, the same as the preferred alternative. The environmentally preferred alternative is decided by applying the six criteria described in the section titled “Environmentally Preferred Alternative” toward the end of this chapter. The preferred alternative is decided through a value analysis process called “Choosing by Advantages” (CBA). The CBA process is a tool for determining the specific advantages each alternative would provide toward meeting specific park objectives, and the advantages represent the benefits that would be gained under each alternative. The advantages for each alternative are compared to the expected costs of each alternative to determine the cost-benefit ratio of each alternative. The alternative that provides the most benefit per dollar, with the least adverse environmental impacts, is the best value alternative and the one that is labeled “preferred” in this plan. The application of Choosing by Advantages in this planning process is described at the end of this chapter under the section titled “Preferred Alternative.”

CONSIDERATION OF BOUNDARY ADJUSTMENT(S)

The roughly 1,600-acre boundary of the Ice Age Complex (refer to figure 1 in chapter 1) is the same as the boundary of the Cross Plains unit of the Ice Age Reserve (approved by the Wisconsin Natural Resources Board in 1999). When this unit of the reserve was

originally delineated after passage of the 1964 law establishing the Ice Age Reserve across the state, the boundary was much smaller and only north of Old Sauk Pass. At that time, the small Cross Plains unit of the Ice Age Reserve was designated as Cross Plains State Park. Since that time, the unit's boundary has been expanded, the Ice Age National Scenic Trail's route in Dane County has been planned, and other state property has been acquired next to the state park boundary for the Ice Age National Scenic Trail. During the process to develop this general management plan / environmental impact statement, it became apparent that the project goals for Ice Age National Scenic Trail lands are parallel with this project. The plan recommends that all of the state-owned land in the current boundary of the Cross Plains unit, as well as the State Ice Age Trail Areas, be redesignated as Cross Plains State Park lands. Similarly, all lands in the Cross Plains unit boundary that come into WDNR ownership in the future would also be designated as part of Cross Plains State Park lands. This designation would provide a consistent recreational use policy for the Ice Age National Scenic Trail as it passes through the Ice Age Complex and other recreational uses.

Currently, about one-third of the land within the complex's boundary is publically owned and managed; the remainder of the land is privately owned. It is the goal of the partners in this planning process to have the ability to manage all of the lands within this boundary by acquiring either the lands or interests in the lands (such as easements) through cooperative negotiation processes with willing sellers. Any acquisition would only be from willing sellers with whom the project partners would discuss the best mechanism for protection. In acquiring interests in real property, both the National Park Service and Department of Natural Resources are required by state and/or federal laws to pay "just compensation," which is the estimated market value of a property or interest therein based on an appraisal prepared by a certified general licensed appraiser.

As part of the planning process, the National Park Service identified and evaluated boundary adjustments that might be necessary or desirable to carry out park purposes. Section 3.5 of *NPS Management Policies 2006* states that the National Park Service may recommend potential boundary adjustments (for one or more of the following reasons) to

- include and protect significant resources and values or to enhance opportunities for public enjoyment related to park purpose

- address operational and management issues

- protect resources critical to fulfilling the park's purpose

The NPS policies further instruct that any recommendations to expand a park unit's boundaries be preceded by a determination that (1) the added lands would be feasible to administer considering size, configuration, ownership, cost, and other factors; and (2) other alternatives for management and resource protection are not adequate.

The Department of Natural Resources established objectives to identify when boundary expansion is needed; those objectives are to

- provide additional space for future recreational use and possible facility development

- provide more easily recognizable boundaries and facilitate better public use of the public lands

- provide expanded habitat protection within the ecological zone in which the park is located

During the course of the planning process, two parcels were identified as potential additions to the Ice Age Complex under alternatives 3, 4, and 5 (identified as parcels A and B in figure 3). These parcels meet the WDNR criteria. The application of the NPS criteria noted above is described in this chapter under each of these alternative descriptions.

USER CAPACITY

“User capacity” is the type and level of use that could be accommodated while sustaining the quality of a park’s resources and visitor opportunities consistent with the park’s purposes. The management of user capacity involves establishing desired conditions and then monitoring, evaluating, and taking actions to ensure that the park’s values are protected. Any use on public lands comes with some level of impact that must be accepted — it is the responsibility of a park’s managers to decide what level of impact is acceptable and what management actions are needed to keep impacts within acceptable limits.

The process to manage user capacity is summarized by five major steps; those steps are to

- establish desired conditions for resources and visitor experiences (through management areas)

- identify indicators (impacts, such as soil loss or vegetation damage, to monitor to determine whether desired conditions are being met)

- identify standards (limits of acceptable change) for the indicators

- monitor indicators to determine if there are disturbing trends or if standards are being exceeded

- take management action to maintain or restore desired conditions

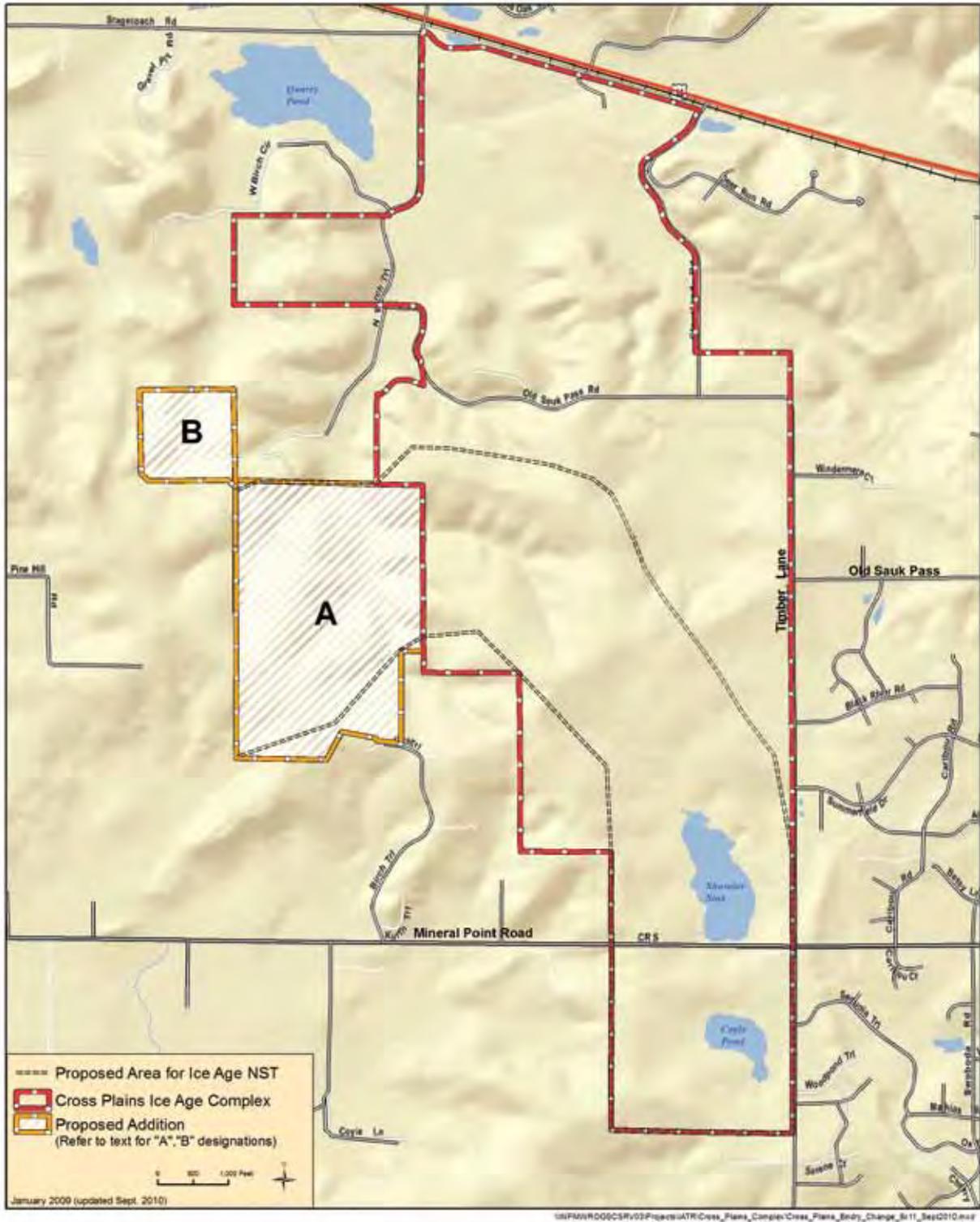
The user-capacity standards and indicators for the Ice Age Complex that were developed as part of this planning process are described below in the section titled “Indicators and Standards.”

THE PROPOSED ALTERNATIVES

The first four alternatives (no action plus alternatives 2, 3 and 4) were presented to the public in fall 2009 as preliminary alternatives. Public feedback on those alternatives was taken into account in developing the preferred alternative (alternative 5) in winter 2009/2010. Alternative 5 was also developed after analyzing the costs and benefits of the four preliminary alternatives. The alternatives that were considered but dismissed are also described in this chapter.



FIGURE 3: EXPANDED BOUNDARY CHANGES AND INCLUSION OF PARCELS A AND B

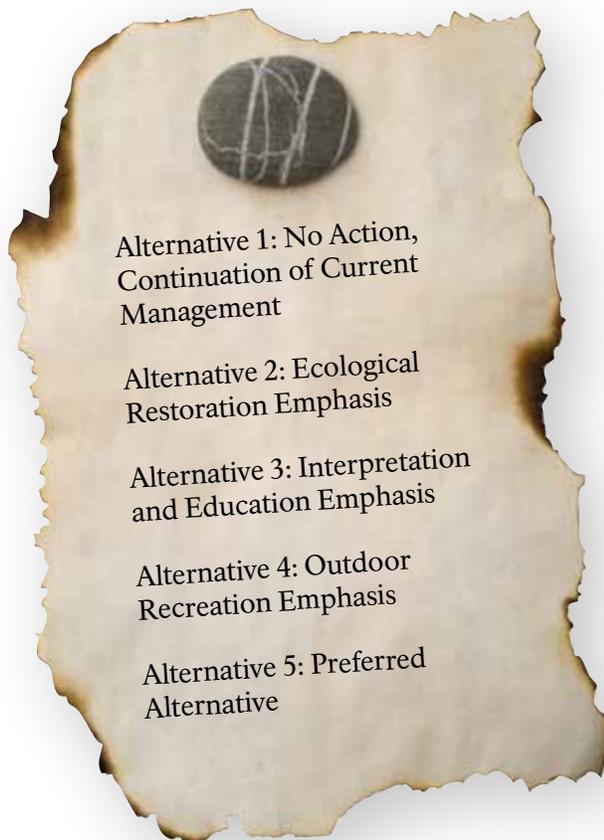


Management Areas

As mentioned above, the different ways site management would change under the action alternatives is shown by applying management areas to maps of the complex to define the intent for resource conditions and visitor experiences for each location. While the configuration of the management areas varies by alternative, the management areas themselves are the same across all alternatives. Five management areas were identified for this plan. Table 2 describes each management area in terms of the desired resource condition, the desired visitor experience, and appropriate facilities.

The Alternatives Considered

Five alternatives were considered and fully analyzed in this planning process.



Elements Common to All Alternatives. There are five elements that apply to all five alternatives.

1. Different types of trails would be built in the Ice Age Complex. A segment of the Ice Age National Scenic Trail would be built within the identified corridor in a sustainable fashion guided by trail handbook standards (see the impacts on soil resources in chapter 4). The handbook standards would also guide development of other trails, except for those described as “accessible,” which would be built to accessibility standards. While the management areas in this general management plan / environmental impact statement provide general guidance for trail location, a trails development plan would examine and analyze specific locations for trails.
2. Visitors would be allowed to walk their dogs (on leash) in most areas of the complex, with the exception of the sensitive resources management area identified in alternative 5 (preferred alternative). Dog walking was one of five specific activities for which interest was expressed by some members of the public during the course of this plan’s development. The other four activities were horseback riding, snowmobiling, mountain biking, and hunting. Because these activities could cause impacts on park resources, the appropriateness of these types of activities on publically owned land in the complex was evaluated as part of the planning process according to the criteria outlined in *NPS Management Policies 2006* (chapter 8). As stated in these policies, the National Park Service “will only allow uses that (1) are appropriate to the purpose for which the park was established, and (2) can be sustained without causing unacceptable impacts.” Evaluating the activities against these criteria, the planning team determined that one

TABLE 2: FIVE MANAGEMENT AREAS FOR THE ICE AGE COMPLEX

	Park Operations and Visitor Orientation	Sensitive Resources	Natural Experience	Landscape Interpretation	Expanded Recreational Experience
Desired Resource Condition	Resources are maintained in good condition, but can be highly modified, as needed to accommodate and withstand high levels of use by visitors and staff.	Natural resources that are a direct result of glaciation are intact. Natural resources that may not be a direct result of glaciation are managed, as necessary, to reveal glacial features. Resources particularly sensitive to user-created impacts or conditions or that pose a risk to visitor safety are located here. There are no agricultural fields in this management area.	Natural resources are managed to approximate presettlement (circa 1830) conditions. To the extent possible, natural ecological processes sustain the integrity of these resources.	Natural resources that are a direct result of glaciation are intact. Natural resources that may not be a direct result of glaciation are managed, as necessary, to reveal glacial features (while vegetation would be native wherever feasible, land cover would need to meet glacial feature-revealing criteria such as height requirements). Structures or manipulated landscapes (such as agricultural fields and yards) do not prevent visitors from being able to recognize glacial and driftless features from key viewpoints.	Natural resources that are a direct result of glaciation are intact. Natural resources that may not be a direct result of glaciation are managed, as necessary, to reveal glacial features (land cover would need to meet certain criteria and specifications such as height requirements). Structures or manipulated landscapes (such as agricultural fields and yards) do not prevent visitors from being able to recognize glacial and driftless features from key viewpoints.
Desired Visitor Experience	Orientation. Visitors come to this area for access and to gain an understanding of this site and its resources. Visitor activities might include viewing orientation maps at trailheads, viewing exhibits and/or participating in interactive exhibits, watching a film, and enjoying programming in both indoor and outdoor sheltered settings. Visitors would generally have access to this entire area, except for office spaces and maintenance and operation areas.	Access to these areas would be highly controlled to protect resources and ensure safety.	Direct sensory experience of natural resources from foot paths would be provided. Interpretation is primarily provided by wayside exhibits and audio tours. Visitors could participate in low-impact activities such as snowshoeing, cross-country skiing on ungrooved trails, berry picking, photography, bird watching, and earth caching.	Views of the results of glaciation on the land across a wide expanse from key points on foot paths, as well as direct experience of smaller-scale features along paths. Interpretation is primarily provided by wayside exhibits and audio tours. Visitors could participate in low-impact activities such as snowshoeing, cross-country skiing on ungrooved trails, berry picking, photography, bird watching, and earth caching.	The primary use is hiking. Other allowed uses include primitive camping, following "leave-no-trace principles," and low-impact activities such as snowshoeing, cross-country skiing on ungrooved trails, berry picking, photography, bird watching, and earth caching. Existing snowmobiles and horse trails are accommodated.
Appropriate Facilities	Facilities (newly constructed and/or existing) would be developed to serve purposes such as a visitor center or contact station; indoor and outdoor exhibits; sheltered picnic areas; outdoor gathering areas (such as an amphitheater); office space; parking, bike racks, and bus shelters; maintenance and operations space; access roads and trails; and hardened trails and trailheads leading out of this area.	Trails and overlooks would be carefully designed and located to afford access to or views of resources while avoiding impacts.	Trails would be designed and located to afford direct experience of natural resources. Wayside exhibits, directional signage, and occasional benches, as well as roads for service vehicles to use for maintenance and resource preservation purposes and in emergencies, might also be located in this management area.	Trails would be designed and located to afford views and direct experience of glacial features. Wayside exhibits, directional signage, and occasional benches, as well as roads for service vehicles to use for maintenance and resource preservation purposes and in emergencies, might also be located in this management area.	Trails would be built in this management area. Spaces and minimal enhancements to accommodate primitive camping, such as a privy, would be provided. Roads for service vehicles to use for maintenance and resource preservation purposes and in emergencies might also be located here.

of these five activities (dog walking) would be acceptable on all publically owned land within the complex, and hunting would be acceptable on some publically owned land in the complex under specific circumstances (see #3 below). The evaluations of horseback riding, snowmobiling, and mountain biking can be found below in the section titled “Alternatives Considered but Dismissed.” Hunting will be evaluated as part of a deer management plan.

All three public landowners in the Ice Age Complex allow dogs to be walked on-leash. On WDNR and U.S. Fish and Wildlife Services (USFWS) properties, dogs could be off-leash if used for hunting. In evaluating whether or not to continue to allow dogs at the complex, NPS *Management Policies 2006* (Chapter 8); federal regulations (36 Code of Federal Regulations [CFR] 2.15); and state regulations (NR 45.06) were consulted. Dog walking is an acceptable activity at the complex (provided that leash rules are followed) because dog walking is compatible with the purpose for which the park was established and could be sustained at current levels without causing unacceptable impacts. Dogs used during hunting (when they do not have to be leashed) on WDNR and USFWS lands also cannot enter the sensitive resources management area given the fragility of resources in that area. If, in the future, dog walking compromises the park managers’ ability to ensure that resource conditions and visitor experience meet standards, and is therefore causing unacceptable impacts, then actions would be considered to address this problem. The indicators and standards outlined in the “User Capacity” section of this document would be used to monitor resource conditions and quality of the visitor experience.

3. A deer management plan would be developed jointly by all public landowners in the Ice Age Complex. The plan’s purpose would be to manage the deer herd at appropriate numbers, as well as provide recreational opportunities for hunters consistent with the different landowners’ policies and regulations governing hunting. The following statements apply to current and future land ownership:

U.S. Fish and Wildlife Service Lands.

The USFWS lands are open to all forms of hunting. This plan does not recommend any changes to these existing regulations.

National Park Service Lands. The NPS lands are closed to all forms of public hunting. A deer management plan would consider multiple techniques to control the deer population; however, public hunting cannot be considered in any form.

Wisconsin Department of Natural Resources Lands. The state of Wisconsin lands are classified as state park, and are open to all forms of hunting and trapping unless closed by the Wisconsin Natural Resources Board to protect public safety or to protect a unique animal or plant community. These closed areas are within or up to 100 yards away from a designated use area.

A “designated use area” is any use area, facility, or feature that the public is encouraged to use and which is maintained for public use on WDNR property it owns or manages subject to an easement or lease, and which has been designated as a use area on a WDNR map prepared for that purpose (WDNR Manual Code 2527.2).

Designated use areas include those areas, facilities, or features developed or maintained for public use such as public contact offices (e.g., park entrance visitor station), WDNR owned and/or maintained roads, trails, campgrounds, canoe and backpack campsites, picnic areas, managed swimming beaches, including any roped-off areas, observation towers, parking lots, and boat access sites.

The Wisconsin Natural Resources Board will determine which areas may be closed to hunting and trapping in an action separate from approval of this plan.

4. A management agreement between the Wisconsin Department of Natural Resources and the National Park Service would govern the day-to-day responsibilities (operations and maintenance, interpretation, and administration) for the complex. This Management Agreement will be developed and refined as the site's visitation and facilities' profile changes to reflect the new needs and opportunities these changes bring. In the meantime, the partners will continue to coordinate activities and to pursue joint planning.
5. There would be close coordination between the administration of the Ice Age National Scenic Trail and management of the Ice Age Complex. Administration and management tasks would be performed in different locations as proposed under alternatives 1 and 2, but under alternatives 3, 4, and 5, the tasks would be co-located at a central Ice Age National Scenic Trail headquarters office within the complex. For comparison purposes, the costs of both trail administration and complex management are factored together in the cost analysis for the alternatives.
6. Each landowner will remain responsible for vegetation management on the land they own. Actions to manage vegetation will be designed to achieve the desired conditions outlined in this plan and will be coordinated for effectiveness and efficiency as much as possible.

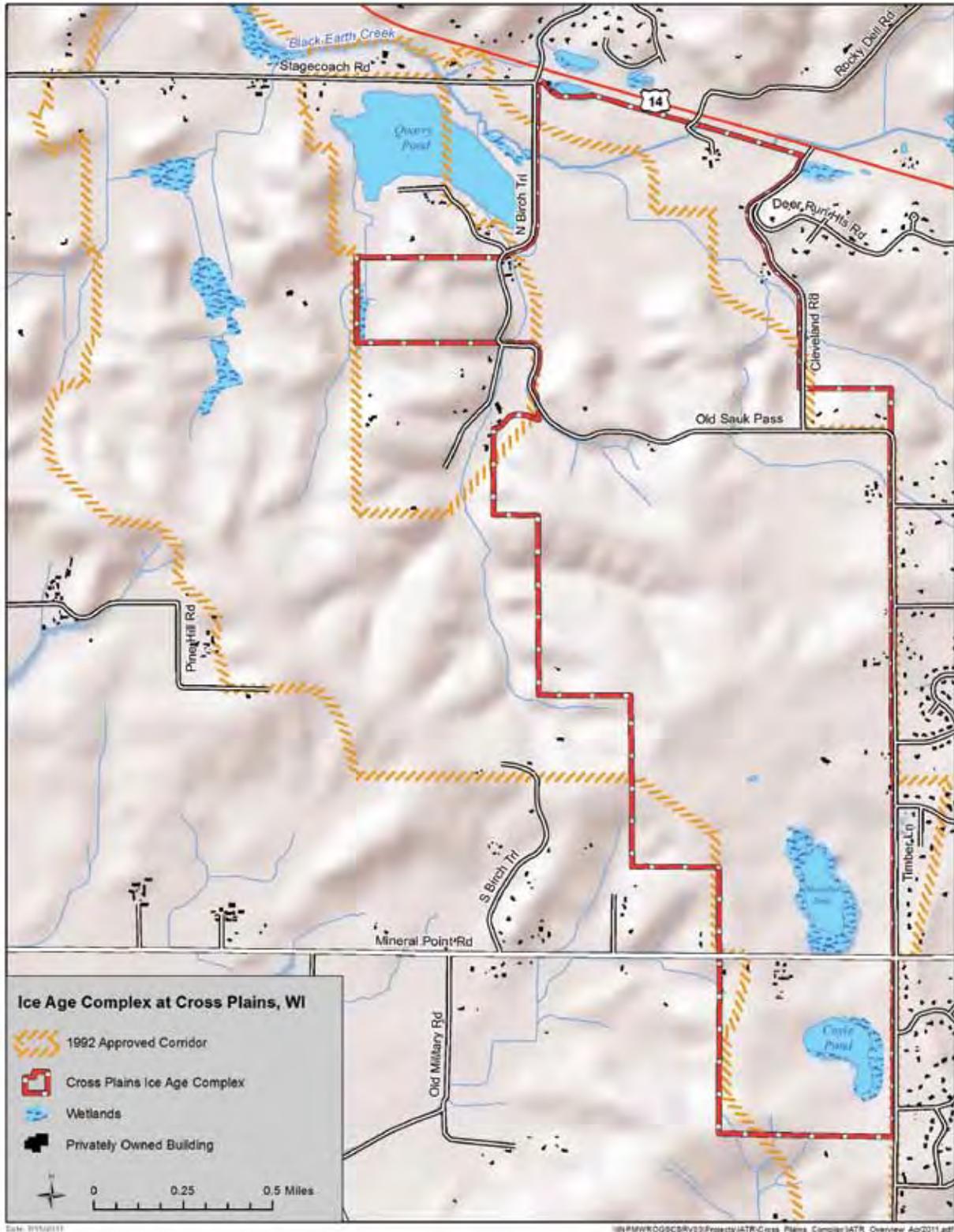
Alternative 1: No-Action, Continuation of Current Management. This alternative describes how the Ice Age Complex would look in the future if no *new* actions were taken. The description for the no-action alternative was used as a baseline against which to assess the benefits, costs, and impacts of action alternatives 2, 3, 4, and 5. Figure 4 provides an overview of the Ice Age Complex at Cross Plains.

The Ice Age Complex is undeveloped for visitor use and minimally maintained. Each public landowning agency manages vegetation on the land it owns. Staff members for the Ice Age National Scenic Trail have stabilized facilities to prevent their deterioration. There are currently no improvements (such as parking or constructed trails) on either WDNR- or NPS-owned lands to facilitate visitor experience. The Shoveler Sink Waterfowl Production Area, managed by the U.S. Fish and Wildlife Service, is open to visitors for hunting, fishing, and other wildlife-dependent activities, but the production area has no visitor facilities other than two small unsurfaced parking lots. Privately owned lands in the complex consist of agricultural fields, along with several homes and their outbuildings.

The segment of the Ice Age National Scenic Trail would still be built within the identified corridor under this alternative, but other trails would not be constructed.

The proposed management areas do not apply to the no-action alternative.

FIGURE 4: OVERVIEW OF THE ICE AGE COMPLEX AT CROSS PLAINS



Boundary expansion — The boundary of the Ice Age Complex would not be expanded.

Estimated costs and staffing — There would be one-time costs for stabilizing the Wilkie property and purchasing seed to reestablish natural vegetation conditions. These total one-time costs would be approximately \$1.24 million (in 2011 dollars) and do not include costs for land protection, such as acquisition or easements. The annual operating costs (in 2011 dollars) would be approximately \$560,000 including costs for resource management, employee salaries and benefits, and leasing office space.

The work necessary to administer the Ice Age National Scenic Trail across the state overlaps significantly with the work required to manage the Ice Age Complex at Cross Plains, thus the annual costs above include costs to support staff whose work would involve both of these functions. The joint staff would comprise six and a half full-time equivalent employees: A trail superintendent and trail manager, who would be responsible primarily for the trail across the state, two planners to prepare plans for the trail state-wide as well as for the complex, an administrative officer, a half-time volunteer coordinator, administrative support, and GIS support. Because managing the Complex would be a partnership effort, this staff would be a mixture of federal employees, state employees, and volunteers.

Alternative 2: Ecological Restoration Emphasis.

Figure 5 is the map for alternative 2. The ecosystem throughout most of the site would be restored to a period before European settlement (circa 1830). The restoration would support interpretation of how natural conditions in the complex would have evolved after the glacial period under minimal human influence. Vegetation would be managed at key points to reveal glacial landscapes, but the focus would be on ecosystem management. Visitors would enjoy a sense of perceived remoteness and quiet, primarily by hiking on trails.

This management concept would be implemented by

- restoring presettlement vegetation by applying natural processes wherever possible

- removing the buildings at the core of the site that belonged to the Wilkie family and providing parking and trail access at this location, as well as outdoor exhibits and primitive restrooms

- providing a minimally developed trail to and along the rim of Cross Plains gorge

- interpreting the site with wayside and outdoor exhibits

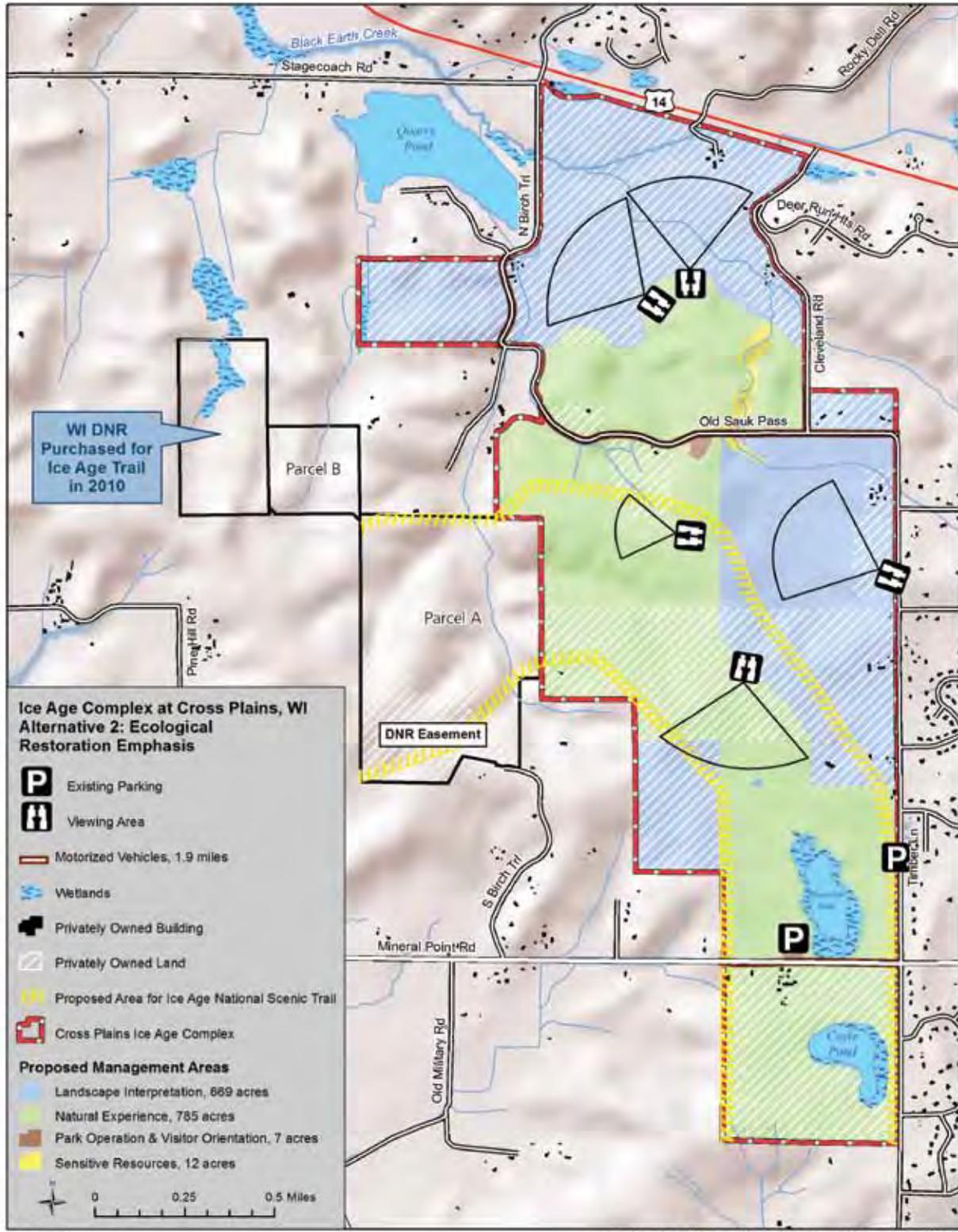
- managing the complex from an off-site location; there would be no permanent staff stationed at the site, and visitor interaction with park staff would be rare

Boundary expansion — The boundary of the Ice Age Complex would not be expanded.

Estimated costs and staffing — There would be one-time costs for removing the Wilkie structures, constructing trails, and purchasing seed to reestablish natural vegetation conditions. The total one-time costs would be approximately \$1.94 million (in 2011 dollars) and do not include costs for land protection, such as acquisition or easements. The annual operating costs (in 2011 dollars) would be approximately \$760,000, including costs for resource management, employee salaries and benefits, and leasing office space.

The work necessary to administer the Ice Age National Scenic Trail across the state overlaps significantly with the work required to manage the Ice Age Complex at Cross Plains, thus the costs above include costs to support staff whose work would involve both of these functions. That joint staff would comprise eight full-time equivalent employees: A trail superintendent and trail manager, who would be responsible primarily for the trail across the

FIGURE 5: MAP FOR ALTERNATIVE 2: ECOLOGICAL RESTORATION EMPHASIS



state, a site manager, who would be responsible for the complex, two planners to prepare plans for the trail state-wide as well as for the complex, an administrative officer and a volunteer coordinator, administrative support, and GIS support. Because managing the Complex would be a partnership effort, this staff would be a mixture of federal employees, state employees, and volunteers.

Alternative 3: Interpretation and Education

Emphasis. Figure 6 is the map for alternative 3. The glacial landscape would be interpreted with a focus on how the Ice Age Complex has evolved over time since the retreat of the last glacier. Throughout most of the complex, ecological resources would be managed to reveal the glacial landscape. Visitors would have an opportunity to experience a wide variety of resources, both ecological and geological, as well as remnants of human use of the site. The visitor experience would involve sheltered and indoor settings at the core of the property and hiking throughout most other areas of the site. Trails would be placed to tell stories of the formation of the glacial landscape and, to a lesser extent, about the ecological resources, such as the oak savanna. Under this alternative, the Ice Age Complex would serve as the headquarters for the Ice Age National Scenic Trail. This management concept would be implemented by

- renovating the house and/or barn at the core of the site for adaptive reuse to accommodate visitor orientation, while interpreting human use and settlement patterns; space in these facilities would also be renovated for use as staff offices

- constructing a new facility at the core of the site to accommodate maintenance needs

- requesting the town of Cross Plains to manage traffic along Old Sauk Pass between Cleveland Road and North Birch Trail to reduce hazards to pedestrians

- providing a trail to and along the gorge with overlooks, surfaced at least in part to accommodate people with disabilities, as well as controlled partial access along the floor of the gorge

- preserving and enhancing key views through vegetation management (for example, by selective thinning and pruning)

- expanding the complex boundary westward to include WDNR-owned land and enhance opportunities to interpret a wider expanse of driftless area terrain

Boundary expansion — Alternative 3 proposes to expand the boundary of the Ice Age Complex, as well as the boundary of Cross Plains State Park. The boundary would be expanded to include parcel A (shown on figure 3), which is a 228-acre WDNR-protected parcel. The Department of Natural Resources owns part of the parcel in full, and part of it is privately owned and protected by an easement. The parcel is recommended for incorporation into the complex’s boundary in order to include and protect significant resources and values and to enhance opportunities for public enjoyment related to park purpose. Parcel A would offer visitors an expansive view of the Driftless Area, a rare sight along the Ice Age National Scenic Trail. This parcel would be feasible because

- it is already publically protected, so no additional land-protection costs would be incurred

- it is contiguous to the current boundary
- the land is currently open space (there are no structures or developments on this land) and would continue to be managed as such

It is possible that current ownership and management is adequate because this land is currently protected by the Department of Natural Resources. Thus, if the land were included in the complex, planning for it and managing it would be administratively seamless and would ensure consistency with current lands in the complex. In this sense, including parcel A in the complex's boundary would not only be feasible but also more efficient than managing it separately.

Estimated costs and staffing — There would be one-time costs to renovate the Wilkie property, to design and install exhibits, to construct trails and a maintenance facility, and to purchase seed to reestablish natural vegetation conditions. The total one-time costs would be approximately \$ 4.74 million (in 2011 dollars) and do not include costs for land protection, such as acquisition or easements. The annual operating costs (in 2011 dollars) would be approximately \$1.01 million, including costs for resource management, employee salaries and benefits, and maintenance and operations.

The work necessary to administer the Ice Age National Scenic Trail across the state overlaps significantly with the work required to manage the Ice Age Complex at Cross Plains, thus the costs above include costs to support staff whose work would involve both of these functions. That joint staff would comprise ten and a half full-time equivalent employees: A trail superintendent and trail manager, who would be responsible primarily for the trail across the state, a site manager, who would be responsible for the complex, two planners to prepare plans for the trail state-wide as well as for the complex, a chief of interpretation and at least one ranger (necessary to develop and support interpretive programming), a chief of maintenance (necessary to take care of the renovated Wilkie buildings), an administrative officer, a half-time volunteer coordinator, administrative support, and GIS support. Because managing the Complex would be a partnership effort, this staff would be a mixture of federal employees, state employees, and volunteers.

Alternative 4: Outdoor Recreation Opportunities

Emphasis. Figure 7 is the map for alternative 4. Visitors would be offered a variety of low-impact outdoor recreational experiences in support of and compatible with preserving and interpreting the glacial significance of the complex and restoring and managing the ecosystem. Visitors would be able to experience resources in diverse ways and would enjoy a broad range of interpretive programming in indoor and outdoor settings. Under this alternative, the Ice Age Complex would serve as the headquarters for the Ice Age National Scenic Trail.

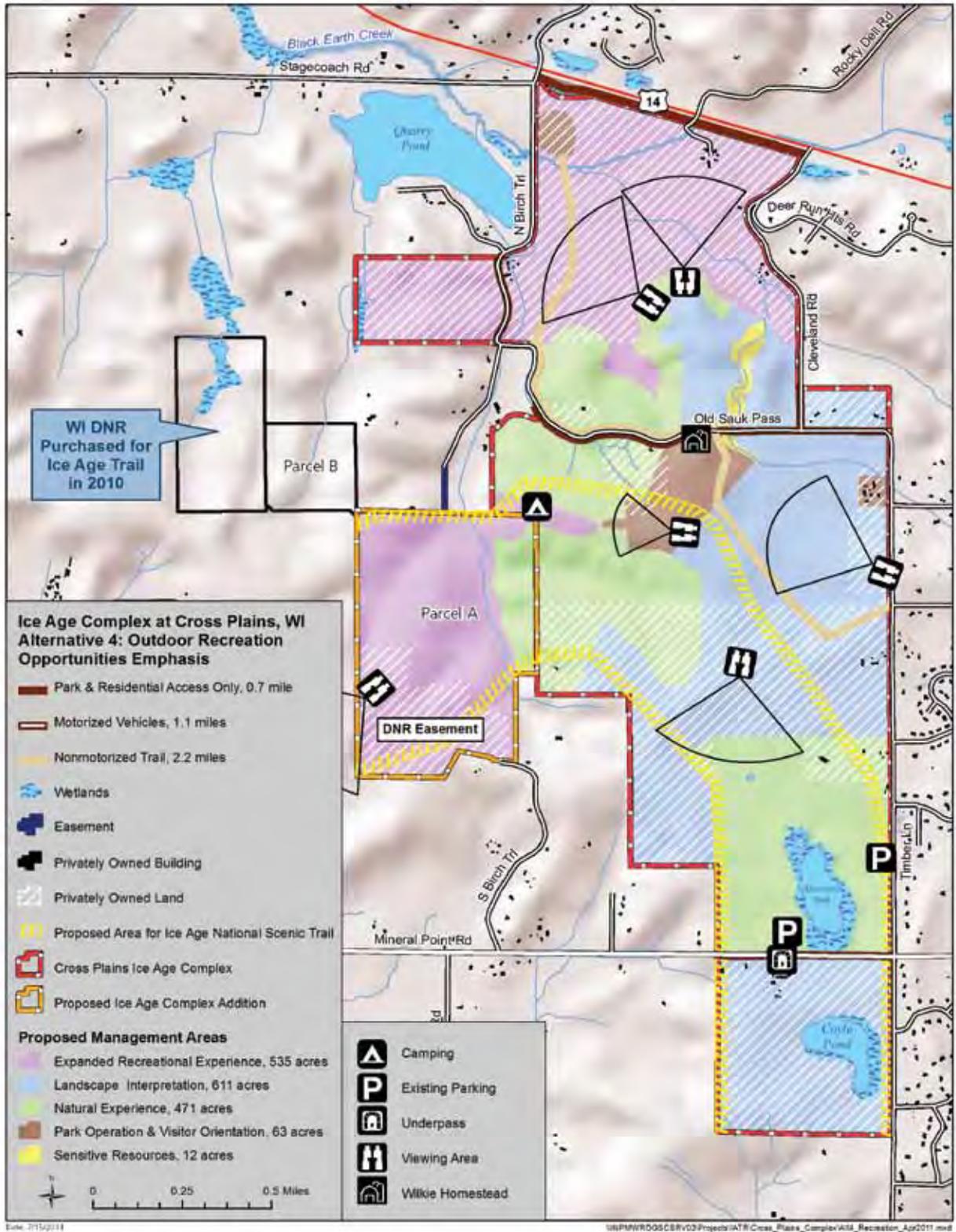
This management concept would be implemented by developing the core of the complex to

- renovate Wilkie house and barn primarily for use as staff offices. The interior of these buildings might or might not be accessible to visitors; a site development plan would determine the most effective and efficient use of space
- selectively site and construct a new visitor center with orientation services (such as exhibits and film)
- selectively site and construct a new maintenance facility, unless future land acquisitions would allow for this development away from the core of visitor activity
- provide outdoor gathering spaces such as an amphitheater and picnic shelter

This management concept would also be implemented by

- requesting the town of Cross Plains to manage traffic along Old Sauk Pass between Cleveland Road and North Birch Trail to reduce hazards to pedestrians (same as proposed under alternative 3)
- providing a trail to and along the gorge with overlooks that would be surfaced, at least in part, to accommodate people

FIGURE 7: MAP FOR ALTERNATIVE 4: OUTDOOR RECREATION EMPHASIS



with disabilities. If feasible, in terms of structural engineering, cost, and environmental impacts, a pedestrian bridge spanning the gorge could be built to provide visitors a unique perspective on its formation

providing extensive, varied trails, including a hardened bicycle/pedestrian trail across the site offering primitive camping in the western sections of the complex

expanding the complex’s boundary westward to enhance opportunities for recreation, especially for a primitive camping experience near the Ice Age National Scenic Trail

Boundary expansion — The boundary of the Ice Age Complex would be expanded to include parcel A, which is shown on figure 3. Parcel A is the same 228-acre WDNR-protected parcel mentioned under alternative 3. This parcel would be necessary to enhance opportunities for public enjoyment related to park purpose. There is no appropriate area for camping along the Ice Age National Scenic Trail corridor within the current complex boundary, so parcel A would be managed for an expanded recreational experience (purple management area in table 2 above) to allow for primitive camping for hikers on the Ice Age National Scenic Trail, which would traverse this area. This addition would be feasible to manage for the same reasons cited under alternative 3. Similarly, the explanation for efficiency in managing parcel A as part of the complex under alternative 3 would also apply to alternative 4.

Estimated costs and staffing — There would be one-time costs to renovate the Wilkie property and construct a new visitor center and maintenance facility, to design and install exhibits, to construct trails, and to purchase seed to reestablish natural vegetation conditions. The total one-time costs would be approximately \$8.8 million (in 2011 dollars) and do not include costs for land protection, such as acquisition or easements. The annual operating costs (in 2011 dollars) would be approximately \$1.26 million, including costs for resource management, employee salaries and benefits, and maintenance and operations.

The work necessary to administer the Ice Age National Scenic Trail across the state overlaps significantly with the work required to manage the Ice Age Complex at Cross Plains, thus the costs above include costs to support staff whose work would involve both of these functions.

That joint staff would comprise fourteen full-time equivalent employees: A trail superintendent and trail manager, who would be responsible primarily for the trail across the state, a site manager, who would be responsible for the complex, two planners to prepare plans for the trail state-wide as well as for the complex, a chief of interpretation and at least two rangers (necessary to develop and support expanded interpretive programming as well as to provide law enforcement), a chief of maintenance and at least one maintenance employee (necessary to take care of the renovated Wilkie buildings as well as the new visitor center), an administrative officer, a resource manager, a volunteer coordinator, administrative support, and GIS support. Because managing the Complex would be a partnership effort, this staff would be a mixture of federal employees, state employees, and volunteers.



Alternative 5: Preferred Alternative. Figure 8 is the map for alternative 5. This alternative would provide visitors with interpretation of the evolution of the complex from the last glacial retreat and opportunities to enjoy appropriate low-impact outdoor recreation. Ecological resources would largely be managed to reveal the glacial landscape. The most sensitive ecological areas would be carefully protected, and visitor access would be highly controlled in these areas. Visitors would experience a wide variety of indoor and outdoor interpretive programming. Under this alternative, the Ice Age Complex would serve as the headquarters for the Ice Age National Scenic Trail.

The management concept for alternative 5 would be implemented by developing the core of the site to accommodate offices for Ice Age National Scenic Trail staff (who would support administrative and maintenance functions) and provide for a visitor center, including a sheltered picnic area. The elements involved in developing the site include

- producing a building complex that would be highly sustainable (the overall goal of this development); certified under the U.S. Green Building Council’s Leadership in Energy and Environmental Design rating system at a gold level; have a minimal carbon footprint; and employ systems to carefully control surface water runoff and avoid impacting the quality of Black Earth Creek.

- retaining parts of the existing house and barn to the extent that is practical, given the need for a cost-effective, environmentally sustainable visitor center, office space, and space to support maintenance functions. Unfortunately, the existing house and barn are not adequate today in size or condition to fully and permanently serve these functions. Ultimately, the design of the core area for public and operational use would reflect public feedback as well as cost and environmental factors.

- site and construct a new maintenance facility away from the core of visitor activity, if land acquisition occurs

Until the visitor center, office, and maintenance facility complex described above can be funded and constructed, the existing buildings in the core area may be minimally modified, as necessary, to make them useful on an interim basis as a visitor contact station and for maintenance and storage purposes.

The management concept for alternative 5 would also be implemented by

- requesting the town of Cross Plains to manage traffic along Old Sauk Pass between Cleveland Road and North Birch Trail to reduce hazards to pedestrians (same as alternatives 3 and 4)

- providing a trail leading to and along the gorge with overlooks surfaced at least in part to accommodate people with disabilities. Vegetation in the gorge would be restored and volunteer trails removed.

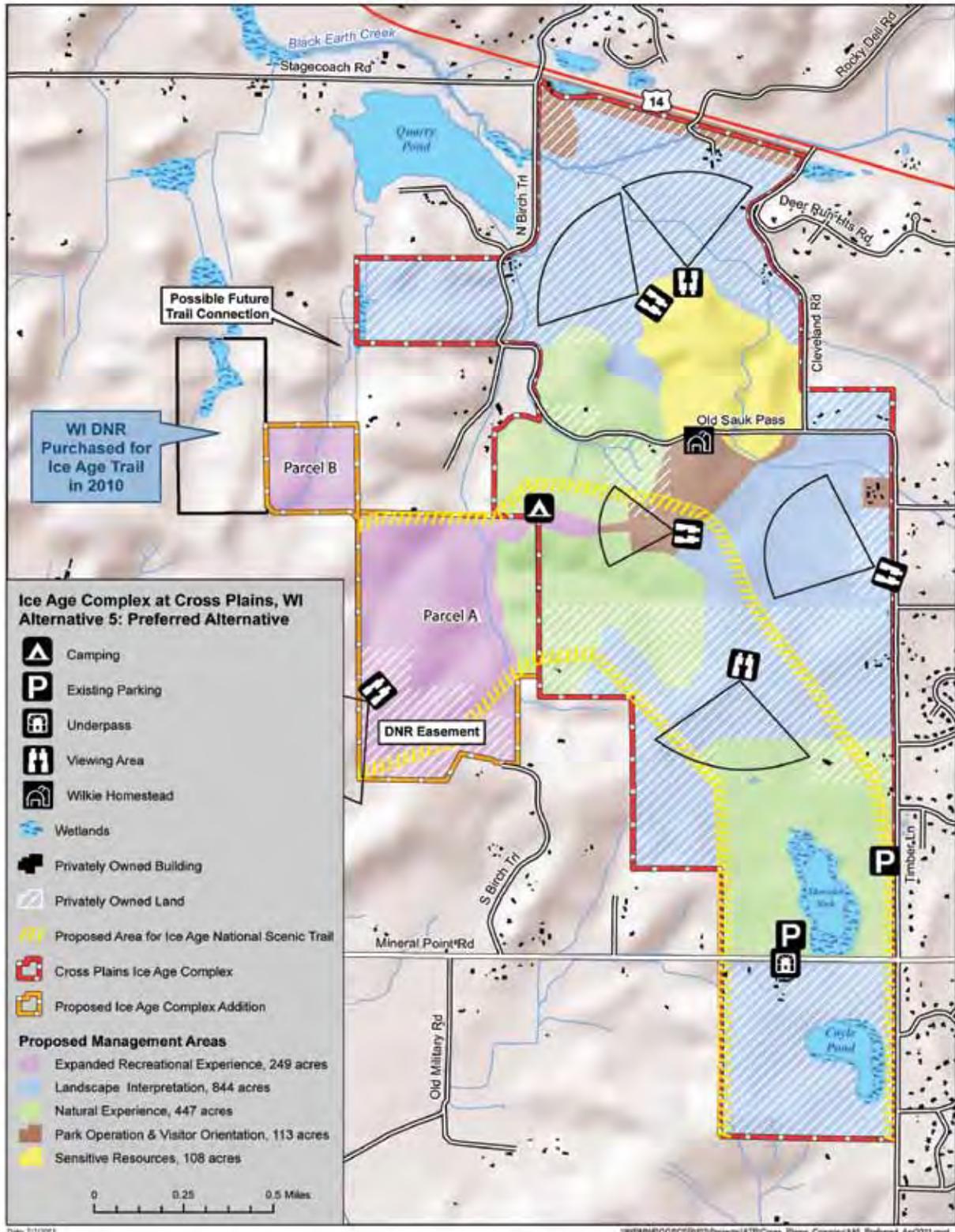
Additionally, the management concept for alternative 5 would be implemented by

- providing an extensive, varied hiking trail network throughout the complex

- providing a management area in a narrow strip along U.S. Highway 14 to accommodate a bicycle path (in the planning stages) to connect Middleton to Cross Plains. This alternative does not envision the National Park Service or the Wisconsin Department of Natural Resources building the bicycle path but, rather, would accommodate local efforts to build the path

- offering primitive camping equipped with a privy in the western part of the complex

FIGURE 8: MAP FOR ALTERNATIVE 5: PREFERRED ALTERNATIVE



establishing a wildlife corridor of unbroken habitat between the former Wilkie property and Shoveler Sink. The area of this corridor is defined as “landscape interpretation” because of the abundance of opportunity to view glacial features here. While the landscape interpretation management area generally allows for agricultural fields, the intent of landscape interpretation in this particular corridor is to return the land to a type of native vegetation (such as short prairie grasses rather than tall prairie grasses) that would not obscure the view of glacial features

providing picnic tables next to parking areas along U.S. Highway 14 and along Mineral Point Road

Boundary expansion — Alternative 5 proposes to expand the complex boundary westward to incorporate expansion areas (parcels) A and B shown on figure 3. Parcel A is the same 228-acre WDNR-protected parcel mentioned above under alternatives 3 and 4, and parcel B is a 40-acre parcel protected and owned by the Department of Natural Resources. Both parcels would be necessary in order to enhance opportunities for public enjoyment related to park purpose under this alternative. Parcels A and B would be managed for an expanded recreational experience (purple management area on table 2) to allow for primitive camping for hikers on the Ice Age National Scenic Trail, which would traverse this area, and for hiking on other trails.

The two parcels would be feasible to manage because

there would be no acquisition costs since the lands in the two parcels are already protected by the Department of Natural Resources

the inclusion of the two parcels in the boundary would not substantially change the current conditions of these parcels. Today, the parcels

are undeveloped open space; after inclusion, the parcels would be used to enhance opportunities for public enjoyment related to park purpose

The explanation under alternative 3 for efficiency in managing these parcels as part of the complex would also apply to this alternative 5.

Estimated costs and staffing — There would be one-time costs to renovate the Wilkie property and/or for new construction in the core area, to design and install exhibits, to construct trails and to purchase seed to reestablish natural vegetation conditions. The total one-time costs would be approximately \$7.09 million (in 2011 dollars) and do not include costs for land protection, such as acquisition or easements. These one-time costs would be lower than in alternative 4 because alternative 5 does not propose constructing a bicycle path to traverse the property, constructing a pedestrian bridge spanning the gorge or renovating the former Wilkie buildings (unless the cost would be comparable to building new facilities). The annual operating costs (in 2011 dollars) would be approximately \$1.26 million, including costs for resource management, employee salaries and benefits, and maintenance and operations.

The work necessary to administer the Ice Age National Scenic Trail across the state overlaps significantly with the work required to manage the Ice Age Complex at Cross Plains, thus the costs above include costs to support staff whose work would involve both of these functions. That joint staff would comprise fourteen full-time equivalent employees: A trail superintendent and trail manager, who would be responsible primarily for the trail across the state, a site manager, who would be responsible for the complex, two planners to prepare plans for the trail state-wide as well as for the complex, a chief of interpretation and at least two rangers (necessary to develop and support expanded interpretive programming as well as to provide law enforcement), a chief

of maintenance and at least one maintenance employee (necessary to take care of the new spaces for visitors and for staff offices), an administrative officer, a resource manager, a volunteer coordinator, administrative support, and GIS support. Because managing the Complex would be a partnership effort, this staff would be a mixture of federal employees, state employees, and volunteers.

Alternatives Considered but Dismissed

Four elements for potential inclusion in the range of management alternatives were dismissed from further consideration. This section describes the four elements and the reasons they were dismissed.

Element 1, Locating the Primary Access Point and Visitor Center on the North or South ends of the Complex. The northern and southern boundaries are both major roads and would be obvious access points to the complex. The GMP/EIS team considered areas along each of these boundaries for visitor center placement but did not select these locations for the following reason:

The complex measures roughly 3 miles from north to south. Placing a visitor center and parking area on either the northern or southern boundary means visitors would have to hike as much as 3 miles from the primary orientation site to see the entire complex. Additionally, the features that are expected to be most attractive to visitors, and that are also the fundamental resources of the park, such as the Cross Plains gorge and most high points, are concentrated toward the center of the site. Placing a visitor center on the north or south boundaries would exclude the opportunity for the park to conduct programs in which rangers would walk short distances with visitors (0.5 mile or less) from the visitor center to these resources. Lastly, it would be easier to protect resources and monitor for signs of misuse or vandalism if staff were closer to the resources.

Element 2, Establishing Horse Trails. The planning team considered but dismissed the possibility of establishing horse trails at the Ice Age Complex. The appropriateness of accommodating horseback riding in the Ice Age Complex was evaluated according to NPS *Management Policies 2006* (chapter 8); federal regulations (36 CFR 2.16 – Horse and Pack Animals); and WDNR design standards for horse trails. The horseback riding policies for the agencies are presented below.

Policy on NPS-owned land: Horses are prohibited outside of trails designated for their use. There is no designated route on NPS-owned land.

Policy on WDNR-owned land: Horses are prohibited except in areas or on trails designated for their use. There is a short trail used as a horse trail connection on state-owned lands west of the current boundary, and these lands are proposed for inclusion in the boundary under alternatives 3, 4, and 5.

Policy on USFWS-owned land: Horses are prohibited.

Evaluation of horseback riding — Currently, of all the lands included in the complex's boundary under alternatives 3, 4, and 5, horseback riding is allowed on only a short trail on the state-owned lands (parcel A on figure 3). This horse trail connects two parcels of private land. When the Department of Natural Resources gave permission for horseback riders to pass across state-owned lands between these two private parcels, the understanding was that, eventually, the horseback riding public would be able to access this trail. Today, however, access remains available to only those with permission from the owner of these private parcels. Despite the years that have passed since this permission was granted, the horse trail still provides exclusive access to public lands and is therefore no longer appropriate. This trail would be closed to horses.

Beyond the state-owned lands, horseback riding is an inappropriate use of public lands at the Ice Age Complex given the potential for resource degradation. Well-used horse trails in the area of glacial topographical features would likely damage or destroy these features. In addition, the Ice Age National Scenic Trail segment (when constructed) would be an inappropriate location for horses. The Ice Age National Scenic Trail is built and maintained by volunteers to sustainable footpath standards for hiking. Consequently, there is a high probability that horse use would degrade the trail as well as compromise the NPS and WDNR relationship with their primary nonprofit partner (the Ice Age Trail Alliance) who builds and maintains the Ice Age National Scenic Trail statewide. It is unlikely that a horse trail would be established in the parts of the complex (where glacial features are absent) outside the Ice Age National Scenic Trail corridor that would, from a length perspective, provide a quality experience.

Element 3, Establishing Snowmobile Trails. The planning team considered but dismissed the possibility of establishing snowmobile trails at the Ice Age Complex. The appropriateness of allowing snowmobiles in the Ice Age Complex was evaluated according to NPS *Management Policies 2006* (Chapter 8) and federal regulations (36 CFR 2.18 – Snowmobiles).

The snowmobile policies for the agencies are presented below.

Policy on NPS-owned land: Snowmobiles are prohibited except on designated routes. There is no designated route on NPS-owned land.

Policy on WDNR-owned land: There is currently a snowmobile trail on the state-owned lands that dips into the southwest corner inside the current complex boundary (to be included in the boundary under alternatives 3, 4, and 5). Any other snowmobiling would need to be approved through a planning process.

Policy on USFWS-owned land: Use of snowmobiles is not appropriate.

Evaluation of snowmobiling — A new snowmobile route beyond the established area on state-owned lands would be an inappropriate use of public lands at the Ice Age Complex. New snowmobile trails would be inconsistent with natural (such as wildlife), scenic, and aesthetic values and safety and management objectives. The existing snowmobile route will remain open, but no new trails will be established. The existing snowmobile trail on state-owned lands is a small part of a much larger statewide network of snowmobile trails and functions as a connector between other trails used by snowmobilers. In addition to conflicting with management objectives at the complex, using lands in the Ice Age Complex for snowmobiling is unnecessary given the extent of the existing snowmobile trail network and the mechanisms in place to identify and maintain snowmobile trails across the region.

Element 4, Establishing Mountain Bike Trails. The planning team considered but dismissed the possibility of establishing mountain bike trails at the Ice Age Complex. The appropriateness of allowing off-road biking on trails in the Ice Age Complex was evaluated according to the NPS *Management Policies 2006* (chapter 8); federal regulations (36 CFR 4.30 – Bicycles); and state regulations (NR 45.05).

The bicycling policies for the agencies are presented below.

Policy on NPS-owned land: Bicycles are prohibited except on park roads, in parking areas, and on routes designated for bicycle use. There are no designated bicycle trails in the complex. The established practice of road biking along Old Sauk Pass would continue.

Policy on WDNR-owned land: Bicycles are prohibited except in areas and trails posted for their use. As mentioned above, the established practice of road biking along Old Sauk Pass would continue.

Policy on USFWS-owned land: Use of bicycles is not appropriate.

Evaluation of mountain biking — Mountain biking is an inappropriate use of public lands at the Ice Age Complex given inconsistency with safety and management objectives, as well as the potential for resource degradation. Even if the impacts of off-road biking could be mitigated effectively, it seems very unlikely that the complex would provide a satisfactory mountain biking experience. Well-used mountain bike trails in the area of glacial topographical features would likely damage or destroy these features. Beyond the state-owned lands, mountain biking is an inappropriate use of public lands at the Ice Age Complex given the potential for resource degradation. Well-used off-road bike trails in the area of glacial topographical features would likely damage or destroy these features. In addition, when constructed, the Ice Age National Scenic Trail segment would be an inappropriate location for bikes.

The portion of the Ice Age National Scenic Trail outside the complex is built and maintained to sustainable footpath standards for hiking. Consequently, there is a high probability that bike use would degrade the trail, as well as compromise the NPS and WDNR relationship with their primary nonprofit partner (Ice Age Trail Alliance) who builds and maintains the Ice Age National Scenic Trail (the statewide portion of the trail outside the complex). In addition, the Ice Age National Scenic Trail is not an appropriate location for mountain biking given the potential to compromise the trail experience for hikers, who are not only the primary users of the Ice Age National Scenic Trail, but who also comprise the membership of the primary volunteer group (Ice Age

Trail Alliance) that maintains the trail. It is unlikely that a mountain biking trail would be established in the parts of the complex (where glacial features are absent) outside the Ice Age National Scenic Trail corridor that would, from a length and topographic perspective, provide a quality experience for mountain bikers while not interfering with other park users.

ESTIMATED COSTS AND STAFFING (IN 2010 DOLLARS) OF THE FIVE ALTERNATIVES

The National Park Service requires that cost estimates of projects be included in general management plans (costs are required under the 1978 Parks and Recreation Act and are requested by Congress for budget control purposes). The purpose of cost estimates is to assist managers with setting priorities and to inform the public. Table 3 provides very broad estimates based on costs of construction, supplies, and employee salaries and should not be used for budgeting and project planning. Actual costs would be determined at a later date, considering the design of facilities, identification of detailed resource protection needs, and changing visitor expectations. The NPS facility models were used to estimate the needed size and therefore presumed costs of future facilities. Note that potential costs for land protection tools (such as easements and acquisitions) to fully protect lands in the Ice Age Complex are not included in these estimates. The estimated staffing costs in table 3 cover not only costs for staffing the complex but also for staffing the Ice Age Trail administration. The reason for including both of these functions in the cost estimate of all of the alternatives is for comparison purposes.

USER CAPACITY

General management plans for units of the national park system are required, by law, to identify and address implementation commitments for user capacity, also known as carrying capacity. The National Park Service defines user capacity as the types and levels of visitor use that could be accommodated while sustaining the quality of park resources and visitor experiences consistent with park purposes. Managing user capacity in national parks is inherently complex. It depends not only on the number of visitors but also on where the visitors go, what they do, and the “footprints” they leave behind. Rather than just regulating the number of people in a park area, the park staff and partners rely on a variety of management tools and strategies to manage user capacity.

In addition, the ever-changing nature of visitor use in parks requires a deliberate and adaptive approach to user-capacity management. Figure 9 presents the NPS user-capacity framework.

The purpose, significance, special mandates, and management areas associated with the Ice Age Complex comprise the foundation for making user capacity decisions in this document. The purpose, significance, and special mandates define why the park was established and identify the most important resources and values (including visitor opportunities) that must be provided and protected. The management areas in each action alternative describe the desired resource conditions and visitor experiences, including appropriate types of activities and general use levels for different locations throughout the park. The management areas, as applied in the alternatives, are consistent with and would help the park achieve its specific purpose, significance, and special mandates. The NPS staff at the complex commit to abiding by these directives for guiding the types and levels of visitor use that would be accommodated, while sustaining the quality of park resources and visitor experiences consistent with the purposes of the park.



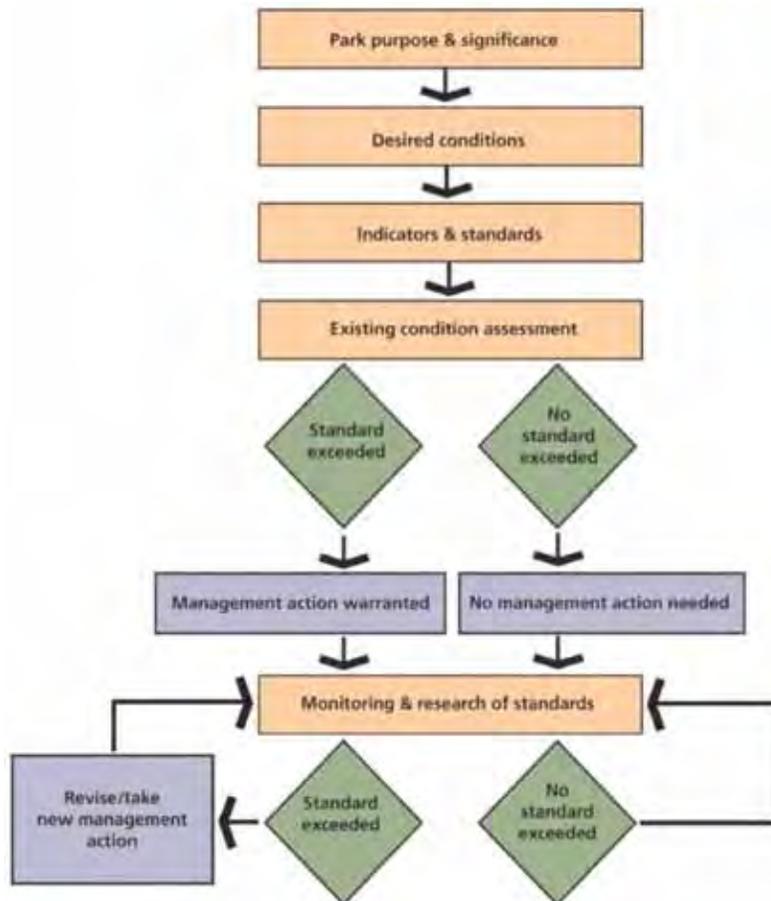
TABLE 3: ESTIMATED COSTS OF IMPLEMENTING EACH OF THE FIVE ALTERNATIVES

Cost Category	Alternative 1: No Action, Continuation of Current Management	Alternative 2: Ecological Restoration	Alternative 3: Interpretation and Education Emphasis	Alternative 4: Outdoor Recreation Emphasis	Alternative 5: Preferred Alternative
Annual Operating Costs ^a	560,000	760,000	1,010,000	1,260,000	1,260,000
Staffing (FTE) ^b	6	8	10.5	14	14
One-time Costs ^c					
Facility Costs ^d	40,000	170,000	2,270,000	5,400,000	3,600,000
Nonfacility Costs ^e	1,200,000	1,770,000	2,470,000	3,400,000	3,490,000
Total One-time Costs	1,240,000	1,940,000	4,740,000	8,800,000	7,090,000

Notes:

- a. All costs in 2010 dollars. Annual operating costs include maintenance and operations, utilities, supplies, staff salaries and benefits, and leasing costs.
- b. Total full-time equivalents (FTE) are the number of employees required to operate the complex (includes staff for maintenance and operations, visitor services, resource management, and so forth) and to administer the Ice Age National Scenic Trail statewide. Employee salaries and benefits are included in the annual operating costs.
- c. The one-time costs are divided between facility and nonfacility costs.
- d. One-time facility costs are for design and construction of new buildings and other structures, roads, parking areas, and trails, as well as changes to existing buildings.
- e. One-time nonfacility costs include actions for the preservation and/or restoration of natural resources and development of visitor use tools not related to facilities. Examples include purchase of seed for restoring native vegetation and wayside exhibits.

FIGURE 9: NPS USER-CAPACITY FRAMEWORK



INDICATORS AND STANDARDS

This plan includes indicators and standards for the Ice Age Complex that are in addition to the important directives discussed above. Indicators and standards are measurable variables that are monitored to track changes in resource conditions and visitor experiences. The indicators and standards help the National Park Service ensure that desired conditions are being attained and that those conditions support the fulfillment of the park’s legislative and policy mandates. The general management plan identifies the types of management strategies that would be taken to achieve desired conditions and also identifies related legislative and policy mandates.

Table 4 presents the indicators, standards, and potential future management strategies (allocated by management area) that would be implemented as a result of this planning effort. The planning team considered many potential issues and related indicators that would identify impacts of concern, but those described below were considered the most significant, given the importance and vulnerability of the resource or visitor experience affected by visitor use. The planning team also reviewed the experiences of other parks with similar issues to help identify meaningful indicators. Standards that represent the minimum acceptable condition for each indicator were then assigned, taking into consideration the qualitative descriptions of the desired conditions, data on existing conditions, relevant research studies, staff management experience, and scoping on public preferences.

TABLE 4: INDICATORS, MANAGEMENT AREAS, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES

Recommended Indicator(s)	Assigned Management Area	Recommended Standard(s)	Management Strategies
Number of unauthorized campsites* per year *As evidenced by obvious vegetation damage (such as flattening, trampling, or removal)	Expanded recreational experience, natural experience, and sensitive resources	<i>Expanded recreational and natural experience</i> No more than 3 unauthorized campsites per year <i>Sensitive resources</i> Zero tolerance for unauthorized campsites in any season	Educate public on park regulations, resource sensitivity, and appropriate behaviors Install signage on park regulations, resource sensitivities, and appropriate behaviors Regulate and enforce designated camping areas Increase frequency of patrols Temporarily or permanently close areas
Number of campfires* per year *As evidenced by obvious fire activity (such as blackened soil, fire rings, or burnt materials)	Parkwide, especially near parking areas	<i>Sensitive resources</i> No tolerance for campfires in any season <i>All other management areas</i> No more than 1 campfire per year	Educate public on park regulations, resource sensitivity, and appropriate behaviors Increase frequency of patrols Install signage at parking areas and trailheads

TABLE 4: INDICATORS, MANAGEMENT AREAS, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES (CONTINUED)

Recommended Indicator(s)	Assigned Management Area	Recommended Standard(s)	Management Strategies
<p>Decrease in populations of specific plant and animal species</p> <p>Levels, density, and diversity of important/targeted plant and animal species</p>	Parkwide	<p>(Dependent on plant species and communities)</p> <p>No more than 5% decrease in plant and animal diversity in the expanded recreational experiences, natural experience, and landscape interpretation management areas combined</p> <p>No more than 1% decrease in plant and animal diversity in the sensitive resources management area</p>	<p>Conduct formal review of visitor-caused impacts in order to isolate the possible reason for the impacts and determine the appropriate management response.</p> <p>Educate public on low-impact practices, park regulations, and appropriate behavior</p> <p>Increase fences and barriers</p> <p>Increase staff presence</p> <p>Increase monitoring</p> <p>Regulate or restrict access (especially while undergoing restoration or during breeding seasons)</p>
<p>New occurrences or expansion of existing known priority invasive plant species detections**</p> <p>**See the list following this table of known priority invasive plant species.</p>	Parkwide	No new occurrences of invasive species where they do not presently exist; no spread or growth of existing invasions	<p>Conduct formal review of visitor-caused impacts in order to isolate possible reasons for the impacts and determine the most appropriate management response.</p> <p>Remove invasive species and restore disturbed areas</p> <p>Educate public on low-impact practices and park regulations</p> <p>Require the cleaning of gear and equipment that is capable of transferring plant material</p> <p>Reduce use levels</p> <p>Temporarily or permanently close areas (especially while undergoing restoration or in sites with sensitive resources)</p>
<p>Incidences of damage to or removal of geologic features</p> <p>Visitor-caused erosion to bluffs</p>	Parkwide	<p>Zero tolerance for the removal, damage, or defacement of geologic features</p> <p>Zero tolerance for visitor-caused erosion to bluffs</p>	<p>Educate public on appropriate behaviors, regulations, process of reporting, and low-impact practices</p> <p>Increase staff presence</p> <p>Limit public access</p> <p>Temporarily close areas for restoration</p> <p>Increase fences and barriers</p>
Number of unauthorized trails	<ol style="list-style-type: none"> Parkwide Sensitive area and natural experience 	Zero tolerance for unauthorized trails	<p>Conduct formal review of impacts caused by an unauthorized trail (either visitor or animal related) in order to isolate possible reasons for the impacts and determine most appropriate management response</p> <p>Educate public on resource sensitivity, low-impact practices, appropriate behaviors, and park regulations</p> <p>Increase enforcement of trailing especially on steep slopes</p>

TABLE 4: INDICATORS, MANAGEMENT AREAS, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES (CONTINUED)

Recommended Indicator(s)	Assigned Management Area	Recommended Standard(s)	Management Strategies
			<p>Improve delineation (marking/mapping) of designated trails and overlooks (placement of border logs or other barriers along formal trails at the junction with unauthorized trails)</p> <p>Redesign and relocate trail and overlook areas</p> <p>Remove excess (unauthorized) trails</p> <p>Formalize the unauthorized trails, possibly on new alignment, to accommodate visitor interest</p> <p>Install temporary or permanent signage</p> <p>Limit or reduce levels of use</p>
<p>Percent increase of trail width beyond designated trail tread over a distance of at least 20 feet</p>	<p>All management areas, more frequent monitoring in sensitive resource and park operations and visitor orientation</p>	<p>No more than a 50% increase of trail width beyond designated trail tread over a distance of at least 20 feet</p>	<p>Educate public on resource sensitivity, low-impact practices, appropriate behaviors, and park regulations</p> <p>Increase trail maintenance or rehabilitation</p> <p>Improve delineation of designated trails</p> <p>Redesign or relocate the trail</p> <p>Redirect visitor use</p> <p>Regulate activities</p> <p>Temporarily or permanently close trails</p>
<p>Percent increase of disturbed area* (measured in square feet) beyond designated overlook area</p> <p>*As evidenced by obvious damage (such as flattening, trampling, or removal) to vegetation</p>	<p>Sensitive resources</p>	<p>No more than a 10% increase in disturbed area (measured in square feet) beyond designated overlook area</p>	<p>Educate public on low-impact practices</p> <p>Increase overlook maintenance, such as improving edging or rehabilitation</p> <p>Improve delineation of overlook area, such as adding barriers, resurfacing, and so forth</p> <p>Redesign or relocate the overlook area</p> <p>Add overlook areas</p> <p>Regulate group sizes</p> <p>Temporarily or permanently close the overlook</p>
<p>Percent increase in the number of complaints related to any specific visitor experience or interaction issues (such as crowding, conflicts between specific visitor groups) per year, above the three-year rolling average</p>	<p>Parkwide</p>	<p>No more than a 20% increase in the number of complaints related to any specific visitor experience or interaction issue per year, above the three-year rolling average</p>	<p>Educate public on low-impact practices, activity etiquette, and park regulations and policies</p> <p>Separate visitor groups</p> <p>Increase enforcement</p> <p>Regulate activities</p> <p>Temporarily or permanently close areas</p>
<p>Increase in the total volume of litter picked up during biannual clean-up events and during regularly scheduled staff/volunteer patrols</p>	<p>Parkwide</p>	<p>No more than a 25% increase in the total volume of litter picked up during biannual clean-up events and during regularly scheduled staff/volunteer patrols</p>	<p>Increase education</p> <p>Increase enforcement</p> <p>Restrict certain activities</p> <p>Add trash receptacles, if appropriate</p>

TABLE 4: INDICATORS, MANAGEMENT AREAS, STANDARDS, AND POTENTIAL MANAGEMENT STRATEGIES (CONTINUED)

Recommended Indicator(s)	Assigned Management Area	Recommended Standard(s)	Management Strategies
Number of incidences of unauthorized overnight parking	Parkwide	Zero tolerance for unauthorized overnight parking	Increase enforcement Increase education Increase coordination with local authorities

**** The following are the known exotic (nonnative) invasive plant species in the Ice Age Complex (NPS and WDNR properties)**

autumn olive (<i>Elaeagnus umbellata</i>)	common chicory (<i>Cichorium intybus</i>)	oriental bittersweet (watch list) (<i>Celastrus orbiculatus</i>)
black locust (<i>Robinia pseudoacacia</i>)	garlic mustard (<i>Alliaria petiolata</i>)	Queen Anne’s lace (<i>Daucus carota</i>)
bull thistle (<i>Cirsium vulgare</i>)	Japanese honeysuckle (<i>Lonicera japonica</i>)	reed canary grass (<i>Phalaris arundinacea</i>)
burdock (<i>Arctium spp.</i>)	leafy spurge (<i>Euphorbia esula</i>)	St. John’s wort (<i>Hypericum perforatum</i>)
Canada thistle (<i>Cirsium arvense</i>)	multiflora rose (<i>Rosa multiflora</i>)	white and yellow clover (<i>Melilotus alba</i> and <i>Melilotus officinalis</i>)
common buckthorn (<i>Rhamnus cathartica</i>)	musk thistle (<i>Carduus nutans</i>)	wild parsnip (watch list) (<i>Pastinaca sativa</i>)

**** The following plant species are native but can be problematic because they are vigorous growers and invade other plant communities**

staghorn sumac (<i>Rhus typhina</i>)	walnut (<i>Juglans spp.</i>)	raspberries (<i>Rubus spp.</i>)
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User-capacity decision making is a form of adaptive management (refer to figure 9) in that it is an iterative process in which management decisions are constantly informed and improved. Indicators are monitored, and adjustments are made as appropriate. As monitoring of conditions continues, managers might decide to modify or add indicators if better ways are found to measure important changes in resource and social conditions. Information on the NPS monitoring efforts, related visitor use management actions, and any changes to the indicators and standards would be available to the public.

Priority Visitor Experience Indicators and Standards

The issues associated with the priority visitor experience indicators for the Ice Age Complex are

visitor experience impacts at campsites, the creation of unauthorized trails due to crowding on trails or at attraction points or from illegal or unauthorized uses

number of complaints related to any specific visitor experience or interaction issues

amount of litter

overnight parking or parking in undesignated areas

Similar to the natural resource indicators, visitor opportunities and related experiences in the complex are already being managed in various ways, but they are not routinely monitored. The indicators presented in table 4 above would help park staff track these specific issues to ensure that desired conditions are being achieved.

Visitor activities that might impact visitor experience could include crowding on trails and overlooks, which contribute to the creation of unauthorized trails, widening of formal trails, and degradation of overlooks; user conflicts related to unauthorized camping; and illegal or prohibited activities such as the unauthorized removal of resources, vandalism, campfires, overnight parking, and littering. The impacts on visitor experience from visitor activities could include disturbance to natural resources (vegetation, wildlife, and geologic features); disturbance to other visitors or nearby residents; and injuries from unauthorized trailing on steep slopes and injuries related to campfires.

These impacts could be widespread, with greater emphasis in areas that would be more heavily used, such as along trails, in parking areas, at points of interest, and at designated campsites.

Several of the indicators described above, with regard to visitor use impacts on natural resources, also apply to visitor experience. Visitor-use impacts on natural resources could also affect the aesthetic qualities of the complex, contribute to visitor conflict and crowding, and require management actions (refer to table 4) in response to resource degradation.

Currently, the complex provides no visitor amenities and minimal signage, so members of the public (other than local residents who are aware of its existence) do not visit. There are no formal trails, overlooks, or designated camping areas. Therefore, visitor conflicts and crowding are currently minimal or nonexistent. The potential for conflicts and crowding could greatly increase if the site becomes established and if formal trails, overlooks, and designated camping areas were developed.

In designated camping areas, failure to adhere to the policies outlined in a camping management plan could also lead to crowding or conflict between users. Weather conditions could sometimes force visitors to stay in a particular location, and this would be unavoidable. The concern is when visitors stray from camping policies solely for convenience or preference. Park staff would monitor the indicator related to the number of unauthorized campsites per year.

Long-term Monitoring

The park staff would monitor use levels and patterns throughout the park. In addition, the park staff would monitor the user-capacity indicators. The rigor of monitoring (such as frequency of monitoring cycles and amount of geographic area monitored) the indicators would vary considerably, depending on how close existing conditions are to the standards listed in table 4. If the existing conditions are far from exceeding the standard, the rigor of monitoring might be less than if the existing conditions are close to or trending toward exceeding (not meeting) the standard.

Initial monitoring of the indicators would determine if the indicators are accurately measuring the conditions of concern and if the standards truly represent the minimally acceptable condition of the indicator. Park staff might decide to modify the indicators or standards and revise the monitoring program if better ways are found to measure changes caused by visitor use. Most of these types of changes should be made within the first several years of initiating monitoring. After this initial testing period, adjustments would be less likely to occur. Finally, if use levels and patterns change appreciably, the park staff might need to identify new indicators to ensure that desired conditions would be achieved and maintained. This iterative learning and refining process, a form of adaptive management, is a strength of the NPS user-capacity management program.

NEEDED FUTURE STUDIES AND PLANS

Various implementation plans would be needed under all action alternatives; those plans are a

- deer management plan (by all project partners) that addresses deer overpopulation, as well as concerns regarding chronic wasting disease

- trails development plan that identifies the location and type of trails throughout the complex in accordance with the management areas and descriptions in the final general management plan

- transportation plan in coordination with the expansion and study of Hwy 14 and the bike path, and to address sustainable and alternative transportation options

- resource stewardship strategy that describes the steps necessary to manage resources, followed by a vegetation management plan that would provide day-to-day guidance on methods and means of managing vegetation in the different management areas of the complex

long-range interpretive plan that describes programming necessary to interpret the themes described in the foundation statement in chapter 1 of this general management plan / environmental impact statement

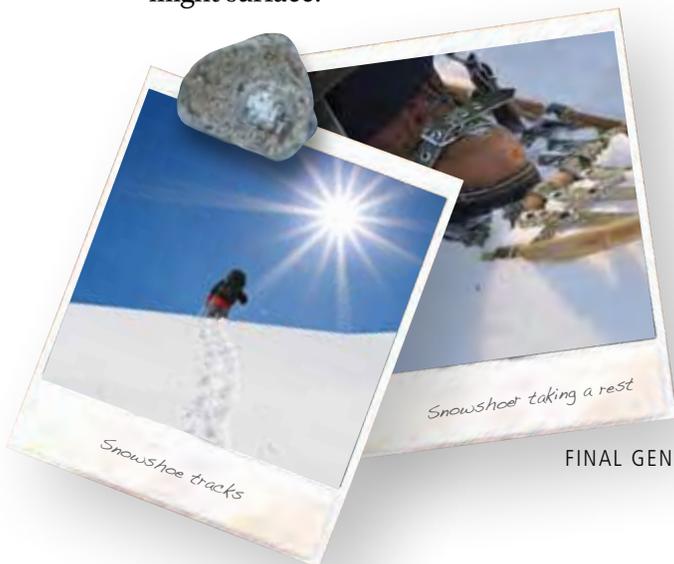
The implementation plan needed under alternatives 2, 3, 4, and 5 would be a

site development plan for the core area of the complex identified with the “Park Operations and Visitor Orientation” management area; this plan would consider options for locating and designing facilities specified in the alternative description for this area. The plan would focus on analyzing impacts (such as impacts on visitor experience and archeology but that are unknown at this time) that could be associated with this development. Specific design and location decisions would influence these impacts.

The implementation plan needed under alternatives 4 and 5 would be a

camping management plan to help decide how to ensure leave-no-trace camping opportunities would be available for long-distance hikers on the Ice Age National Scenic Trail, while avoiding resource degradation; a permitting system would be considered as part of this plan

It is possible that, as these plans are developed and implemented, the need for other plans might surface.



ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferable alternative is defined as “the alternative that will promote national environmental policy as expressed in Section 101 of the *National Environmental Policy Act*.” Section 101 states that “it is the continuing responsibility of the federal government to . . .

- 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 historic, cultural, and natural aspects of our national heritage; and maintain, wherever possible, an environment which supports diversity, and a variety of individual choices;
- achieve a balance between population and resource use which would permit high standards of living and a wide sharing of life’s amenities; and
- enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.”

Table 5 shows the extent to which each of the alternatives in this plan would meet the above six criteria for assessing the environmentally preferred alternative.

TABLE 5: SIX CRITERIA FOR ASSESSING THE ENVIRONMENTALLY PREFERRED ALTERNATIVE

Criterion	Alternative 1: No Action, Continuation of Current Management	Alternative 2: Ecological Restoration Emphasis	Alternative 3: Interpretation and Education Emphasis	Alternative :4 Outdoor Recreation Emphasis	Alternative 5: Preferred Alternative
Generations as trustees	Would partially meet criterion	Would partially meet criterion	Would fully meet criterion	Would fully meet criterion	Would fully meet criterion
Pleasing surroundings	Would fully meet criterion	Would partially meet criterion	Would fully meet criterion	Would fully meet criterion	Would fully meet criterion
Beneficial uses without consequences	Would fully meet criterion	Partially meets criterion	Would fully meet criterion	Would fully meet criterion	Would fully meet criterion
Preserve with diversity and choices	Would partially meet criterion	Would partially meet criterion	Would partially meet criterion	Would fully meet criterion	Would fully meet criterion
Balance permitting high standard of living and sharing of amenities	Would fully meet criterion	Would fully meet criterion	Would fully meet criterion	Would fully meet criterion	Would fully meet criterion
Renewable resources and recycling	Would partially meet criterion	Would partially meet criterion	Would partially meet criterion	Would partially meet criterion	Would fully meet criterion

Because there would be no on-site staff to monitor visitor activity on a daily basis under alternatives 1 and 2, the park’s ability to avoid damage to resources would be less than under alternatives 3, 4, and 5. Because of this, alternatives 3, 4, and 5 would fully realize the responsibilities of each generation as trustee of the environment for succeeding generations than would alternatives 1 and 2 (criterion 1).

Alternative 1 would present safety concerns for visitors who park along Old Sauk Pass and cross the road with traffic as it is now. Under each of the other alternatives, the park would work with the town of Cross Plains to limit access to Old Sauk Pass in order to provide safe passage between the north and south sections of the complex. Therefore, alternatives 3, 4, and 5 would more fully prevent risks to safety surroundings than would alternatives 1 or 2 (criteria 2 and 3).

Under alternatives 1, 2, and 3, visitors would not have the choices for enjoying the complex that they would have under alternatives 4 and 5 due to a lack of interior space.

Alternatives 4 and 5 would enable a larger diversity of experiences through multimedia exhibits, as well as personal interaction with more rangers (an advantage over alternatives 1, 2, and 3). Alternatives 4 and 5 would also add primitive camping to the Ice Age National Scenic Trail hiking experience. These factors, combined, mean that alternatives 4 and 5 would more fully promote an environment that supports diversity and a variety of individual choices than would the other alternatives (criterion 4).

None of the alternatives would entail such a strong shift in socioeconomic or resource use that standard of living or sharing of life’s amenities would change (criterion 5).

Because alternatives 3, 4, and 5 specify retention and reuse of the Wilkie structures, and alternative 5 would result in a highly environmentally sustainable complex, these alternatives would more fully enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources than alternatives 1 and 2 (criterion 6).

Considering all of the criteria, alternative 5 is the most environmentally preferable alternative.

PREFERRED ALTERNATIVE

The value-analysis method, “Choosing by Advantages,” was used to build the preferred alternative. As mentioned in the beginning of this chapter, the CBA process is a tool for determining the specific advantages each alternative would provide toward meeting specific park objectives, taking into account any expected environmental impacts. The objectives for this analysis process, against which the elements of each alternative were weighed, were drawn from the park purpose statements described in the foundation statement in chapter 1. Those objectives are to

preserve and protect identified resources in light of visitation

facilitate interpretation of identified themes

provide an attractive stopping point or destination for Ice Age National Scenic Trail hikers

provide supportive, compatible outdoor recreation opportunities to the general public

After determining the advantages each alternative would offer toward meeting these objectives, the expected costs of each alternative were then compared to these advantages to determine the cost-benefit ratio of each alternative. The elements of the alternatives that provided the most benefit per dollar, with the least adverse environmental impacts, were combined to craft alternative 5, the preferred alternative. For example, having a visitor center would offer so much advantage in interpretation, so the cost of building the center was considered reasonable. However, the bicycle path across the site was removed from alternative 5 because it was considered unnecessary, given the existence of a scenic on-road alternative — North Birch Trail and Old Sauk Pass — that could accommodate this activity; and because it was not publically

supported and would be costly to construct. Similarly, a pedestrian bridge that would span the gorge did not offer great advantages toward meeting objectives, was not supported by the public, and costs to construct the bridge would be high. Thus, constructing the bridge was not considered reasonable, and it was not included in alternative 5.

COMPARISON OF THE ALTERNATIVES

Table 6 summarizes the key elements of each of the five alternatives. Table 7 provides a summary comparison of the environmental impacts of each alternative.



TABLE 6: SUMMARY OF THE KEY ELEMENTS OF THE ALTERNATIVES

	Alternative 1: No Action, Continuation of Current Management	Alternative 2: Ecological Restoration	Alternative 3: Interpretation and Education Emphasis	Alternative 4: Outdoor Recreation Emphasis	Alternative 5: Preferred Alternative
CONCEPT	This alternative reflects the continuation of current management. There would be few trails, no sheltered space for visitors, and very limited parking. Resources would be managed inconsistently.	Ecological restoration is the emphasis in this alternative. While most of the site would be restored to a period before European settlement, glacial landscapes would be revealed over part of the site as well. Interpretation would be largely through outdoor exhibits and waysides (nonpersonal). Visitors would enjoy a sense of remoteness and quiet while hiking trails, but they would not have access to indoor sheltered space.	Interpretation and education are the emphases in this alternative. Most resources would be managed to reveal the glacial landscape. Visitors would have a variety of interpretive experiences in sheltered and indoor settings and while on hiking trails throughout the site.	Outdoor recreation opportunities are emphasized in this alternative. Visitor opportunities would include low-impact outdoor recreational experiences compatible with the preservation and interpretation of the glacial significance of the complex, as well as with the restoration and management of the ecosystem. Visitors would also experience a wide variety of indoor and outdoor interpretive programming.	This alternative combines concepts of the other three action alternatives. This alternative would provide visitors with interpretation of the evolution of the complex from the last glacial retreat and opportunities to enjoy appropriate low-impact outdoor recreation. Ecological resources would largely be managed to reveal the glacial landscape. Sensitive areas would be protected, and visitor access would be highly controlled in these areas. Visitors would experience a wide variety of indoor and outdoor interpretive programming.
FACILITIES					
Wilkie Farmstead	Buildings preserved but not open for public access	All buildings removed	Buildings renovated while maintaining extensive integrity and opened to public access in visitor contact space.	Buildings renovated and reused. Incidental public access to part of the Wilkie property.	Original appearance of the buildings would be retained to the extent that is practical given the overall goal of using this area to support administrative, maintenance, and visitor center functions while demonstrating sustainable building.
Old Sauk Pass	No changes	No changes	Limited access for through traffic on Old Sauk Pass to allow safe passage between north and south sections of complex.	Limited access for through traffic on Old Sauk Pass to allow safe passage between north and south sections of complex.	Limited access for through traffic on Old Sauk Pass to allow safe passage between north and south sections of complex.

TABLE 6: SUMMARY OF THE KEY ELEMENTS OF THE ALTERNATIVES (CONTINUED)

	Alternative 1: No Action, Continuation of Current Management	Alternative 2: Ecological Restoration	Alternative 3: Interpretation and Education Emphasis	Alternative 4: Outdoor Recreation Emphasis	Alternative 5: Preferred Alternative
Construction	No new construction	No new construction	New construction and some renovation	New construction and extensive renovation	Development of the core of the site to accommodate administrative and maintenance functions and provide for a visitor center. Development would meet high standards for sustainability.
LANDSCAPE					
Resource conditions and management	No comprehensive guidance on resource management — glacial features would either be revealed for public viewing or not, depending on management approach at the time.	Comprehensive management zoning: a mix of resource conditions in corridor, about 80% of vegetation in natural experience management area and 20% in landscape interpretation management area.	Comprehensive management zoning: a mix of resource conditions in corridor, about 80% of vegetation in landscape interpretation management area and 20% in natural experience management area.	Comprehensive management zoning: a mix of resource conditions in corridor, about 50% of vegetation in landscape interpretation and expanded recreational experience management areas and 50% of vegetation in natural experience and sensitive resources management areas. A wildlife corridor would be established between Shoveler Sink and the former Wilkie property.	Comprehensive management zoning: a mix of resource conditions in corridor, about 50% of vegetation in landscape interpretation and expanded recreational experience management areas and 50% of vegetation in natural experience and sensitive resources management areas. A wildlife corridor would be established between Shoveler Sink and the former Wilkie property.
Cross Plains gorge	Gorge trail would not be signed or maintained — remains an informal volunteer trail No trail into the gorge No bridge construction Vegetation would not be comprehensively managed	Minimally improved trail around gorge would replace volunteer trail, maintained and with interpretive signs No trail into the gorge No bridge construction Vegetation would not be comprehensively managed	Improved trail around gorge would replace volunteer trail, maintained and with interpretive signs Trail into part of the gorge No bridge construction Vegetation would not be comprehensively managed	Trail to and along the gorge with overlooks would replace volunteer trail, surfaced at least in part for people with disabilities No trail into the gorge Construct bridge (if feasible) Vegetation would not be comprehensively managed	Trail to and along the gorge with overlooks would replace volunteer trail, surfaced at least in part for people with disabilities No trail into the gorge No bridge construction Vegetation would not be comprehensively managed
Oak savanna	Preserved or restored on an ad hoc basis	Preserved or restored	Preserved or restored	Preserved or restored	Preserved or restored

TABLE 6: SUMMARY OF THE KEY ELEMENTS OF THE ALTERNATIVES (CONTINUED)

	Alternative 1: No Action, Continuation of Current Management	Alternative 2: Ecological Restoration	Alternative 3: Interpretation and Education Emphasis	Alternative 4: Outdoor Recreation Emphasis	Alternative 5: Preferred Alternative
Views	Contrast between glaciated and unglaciated areas may be lost Views from 5 highpoints, most not interpreted and no formal access	Contrast between glaciated and unglaciated areas obvious over 45% of site and potentially obscured over 55% (3 out of 5 views obvious) Views from 5 highpoints, interpreted and with formal trails to viewpoints	Contrast between glaciated and unglaciated areas obvious over 80% of site and potentially obscured over 20% (6 out of 6 views obvious) Views from 6 viewpoints, interpreted and with formal trails to viewpoints (significant sixth point)	Contrast between glaciated and unglaciated areas obvious over 70% of site and potentially obscured over 30% (6 out of 6 views obvious) Views from 6 viewpoints, interpreted and with formal trails to viewpoints (significant sixth point)	Contrast between glaciated and unglaciated areas obvious over 70% of site and potentially obscured over 30% (6 out of 6 views obvious) Views from 6 viewpoints, interpreted and with formal trails to viewpoints (significant sixth point)
VISITOR EXPERIENCE					
Recreation	Hiking on volunteer trails and low-impact activities The Ice Age National Scenic Trail would be built. One or two short formal trails to key interpretive locations would also be built Bicycling on existing roadways No camping No indoor sheltered space to rest and obtain information	Hiking on formal trails (about 6 miles) and low-impact activities Formal trails would be developed, marked, interpreted, or maintained to direct use Spur trails from the Ice Age National Scenic Trail throughout complex Bicycling on existing roadways No indoor space to rest but covered, sheltered kiosks offering information	Hiking on formal trails (about 13 miles) Formal trails would be developed, marked, interpreted, or maintained to direct use Spur trails from the Ice Age National Scenic Trail throughout complex Bicycling on existing roadways No camping No outdoor facilities Indoor facilities offering information and visitor contact	Hiking on formal trails (about 13 miles) Formal trails would be developed, marked, interpreted, or maintained to direct use Spur trails from the Ice Age National Scenic Trail throughout complex Bicycling on existing roadways and paved bicycle trail Camping (primitive and limited) Outdoor facilities such as picnic shelters Indoor facilities at the visitor center	Hiking on formal trails (about 13 miles) Formal trails would be developed, marked, interpreted, or maintained to direct use Spur trails from the Ice Age National Scenic Trail throughout complex Bicycle path would be accommodated along U.S. Highway 14 Camping (primitive and limited) Indoor facilities and picnic area at the visitor center
Quiet/solitude Encounters with other visitors	Feeling of quiet along the trail Solitude is likely Strong sense of nature immersion	Feeling of quiet along the trail Solitude is probable Definite sense of nature immersion	Feeling of quiet along the trail Some encounters with other visitors would be expected Some sense of nature immersion	Feeling of quiet and nature immersion is less likely during the day due to presence of developed management area High level of encounters with other visitors expected given level of amenities at complex Possibility for an overnight stay offers a type of immersion (due to length of stay)	Feeling of quiet and nature immersion is less likely during the day due to presence of developed management area High level of encounters with other visitors expected given level of amenities at complex Possibility for overnight stay offers a type of immersion (due to length of stay)

TABLE 6: SUMMARY OF THE KEY ELEMENTS OF THE ALTERNATIVES (CONTINUED)

	Alternative 1: No Action, Continuation of Current Management	Alternative 2: Ecological Restoration	Alternative 3: Interpretation and Education Emphasis	Alternative 4: Outdoor Recreation Emphasis	Alternative 5: Preferred Alternative
Interpretation	No interpretation beyond 1–2 waysides Possible volunteer-led tours, limited Interior space not visitor-ready, no shelter	Very limited interpretive programming would focus on the evolution of natural conditions since the glacial period under minimal human influence	Interpretive programming would focus on the influence of glacial activity on human use and settlement patterns Scheduled ranger-led tours	Variety of interpretive programming Potential for more than two waysides and interpretive trails (about 15 miles) designed to allow visitors to have contact with the fundamental resources	Scheduled and frequent ranger-led tours Interior exhibits and media (such as film) and adequate space for large education classroom-type programming
	No restrooms, parking would remain as it is now, very limited	Potential for more than two waysides and interpretive trails (about 6 miles) designed to allow visitors to have contact with the fundamental resources Occasional volunteer-led tours No interior shelter for visitors Parking and privies	Some interior exhibits, inadequate space for large education classroom-type programming Parking and restrooms	Scheduled and frequent ranger-led tours Interior exhibits and media (such as film) and adequate space for large education classroom-type programming Evening interpretive programs Parking and restrooms	Evening interpretive programs Parking and restrooms
BOUNDARY					
Acreage	Total Acres: 1,473	Total Acres: 1,473	Total Acres: 1,701	Total Acres: 1,701	Total Acres: 1,701

TABLE 7: SUMMARY COMPARISON OF IMPACTS OF THE ALTERNATIVES

Resource Topic	Alternative 1: No Action, Continuation of Current Management	Alternative 2: Ecological Restoration Emphasis	Alternative 3: Interpretation and Education Emphasis	Alternative 4: Outdoor Recreation Emphasis	Alternative 5: Preferred Alternative
SOIL RESOURCES	<p>Alternative 1 would have some beneficial impacts on soils due to conversion of farm land to prairie.</p> <p>There could be moderate to major adverse effects from erosion due to unauthorized trails.</p> <p>The potential impacts on soils from trail construction and use of the Ice Age National Scenic Trail would be mitigated to a negligible level.</p>	<p>Alternative 2 would have some beneficial impacts on soils due to conversion of farm land to prairie.</p> <p>Increased trail usage would likely result in minor impacts on trails from compaction.</p> <p>There could also be moderate impacts from compaction in parking areas, which would eventually be paved.</p> <p>Erosion impacts in the gorge itself would be negligible.</p> <p>There could be moderate adverse impacts on soil and the forest duff covering the gorge walls until the park has the capacity to keep the public off the walls.</p>	<p>Alternative 3 would have some beneficial impacts on soils due to conversion of farm land to prairie.</p> <p>Construction activities could potentially have a temporary moderate adverse impact on soils from erosion and compaction in areas subject to construction.</p> <p>Minor adverse impacts from foot traffic following construction would be confined to areas around buildings and parking lots.</p> <p>There would be a reduction in uncontrolled human activity, thus a reduction in the potential for soil compaction and erosion, resulting in minor to moderate beneficial impacts on those areas.</p>	<p>Alternative 4 would have some beneficial impacts on soils due to conversion of farm land to prairie.</p> <p>Construction activities could potentially have a temporary moderate adverse impact on soils from erosion and compaction in areas subject to construction.</p> <p>Minor adverse impacts from foot traffic following construction would be confined to areas around buildings and parking lots.</p> <p>Increased visitation could result in a moderate adverse impact on the steep slopes facing Black Earth Creek, especially along the trail.</p> <p>There would be a reduction in uncontrolled human activity, thus a reduction in the potential for soil compaction and erosion, resulting in minor to moderate beneficial impacts on those areas.</p>	<p>Alternative 5 would have some beneficial impacts on soils due to conversion of farm land to prairie.</p> <p>Construction activities could potentially have a moderate adverse impact on soils from erosion and compaction during construction.</p> <p>Minor adverse impacts from foot traffic following construction would be confined to areas around buildings and parking lots.</p> <p>There would be a reduction in uncontrolled human activity, thus a reduction in the potential for soil compaction and erosion, resulting in minor to moderate beneficial impacts on those areas.</p>
	<p>Future actions would contribute very little to cumulative impacts when considered with the long-term negligible to major adverse impact on soils from alternative 1.</p>	<p>Future actions would contribute very little to cumulative impacts when considered with the long-term negligible to moderate adverse impact on soils.</p>	<p>Future actions would contribute very little to cumulative impacts when considered with the long-term minor to moderate adverse impact on soils.</p>	<p>Future actions would contribute very little to cumulative impacts when considered with the long-term minor to moderate adverse impact on soils.</p>	<p>Future actions would contribute very little to cumulative impacts when considered with the long-term minor to moderate adverse impact on soils.</p>

TABLE 7: SUMMARY COMPARISON OF IMPACTS OF THE ALTERNATIVES (CONTINUED)

Resource Topic	Alternative 1: No Action, Continuation of Current Management	Alternative 2: Ecological Restoration Emphasis	Alternative 3: Interpretation and Education Emphasis	Alternative 4: Outdoor Recreation Emphasis	Alternative 5: Preferred Alternative
WATER QUALITY					
	There would be negligible adverse impact from agricultural runoff because no chemicals are being applied.	Restoring presettlement vegetation would result in negligible adverse effects on groundwater.	There would be a negligible impact on groundwater from installation of a new well and septic system near the core area of the property.	Same as alternative 3.	Same as alternative 3.
		The discontinuation of agricultural chemicals would likely have a beneficial effect on groundwater, but the amount of this effect cannot be quantified.			
	Impacts on water quality from road maintenance activities, such as road salt runoff, would continue. Future actions would contribute very little to cumulative impacts when considered with the potential long-term negligible adverse impact on water quality.	Impacts on water quality from road maintenance activities, such as road salt runoff, would continue. If impacts from future actions were added to the negligible adverse impacts on water quality from alternative 2, there would be long-term negligible to moderate adverse cumulative impacts on water quality in the complex.	Impacts on water quality from road maintenance activities, such as road salt runoff, would continue. If impacts from future actions were added to the negligible to moderate adverse impacts on water quality from alternative 3, there would be long-term negligible to moderate adverse cumulative impacts on water quality in the complex.	Same as alternative 3.	Same as alternative 3.
SOUNDSCAPES					
	There would be negligible adverse impacts on the soundscape from visitation.	There would be negligible adverse impacts on the soundscape from increased visitation. Building removal would result in temporary moderate adverse impacts on the soundscape.	There would be minor adverse impacts on the soundscape from increased visitation. Renovation activities would result in temporary moderate adverse impacts on the soundscape.	There would be minor adverse impacts on the soundscape from increased visitation. Construction activities would result in temporary moderate adverse impacts on the soundscape.	There would be negligible to minor adverse impacts on the soundscape from increased visitation.
	Future actions would contribute very little to cumulative impacts when considered with the long-term negligible adverse impact on the soundscape.	Future actions would contribute very little to cumulative impacts when considered with the long-term negligible to moderate adverse impact on the soundscape.	Future actions would contribute very little to cumulative impacts when considered with the long-term minor to moderate adverse impact on the soundscape.	Cumulative impacts would be the same as described for alternative 3.	Future actions would contribute very little to cumulative impacts when considered with long-term minor to moderate adverse impact on the soundscape.

TABLE 7: SUMMARY COMPARISON OF IMPACTS OF THE ALTERNATIVES (CONTINUED)

Resource Topic	Alternative 1: No Action, Continuation of Current Management	Alternative 2: Ecological Restoration Emphasis	Alternative 3: Interpretation and Education Emphasis	Alternative 4: Outdoor Recreation Emphasis	Alternative 5: Preferred Alternative
VEGETATION AND WILDLIFE					
	Because there would be few defined trails, there would be some risk of vegetation trampling from the creation of social trails, but potential adverse vegetation impacts from trampling would likely be negligible.	Managing the complex for a natural experience, in which vegetation would be restored to presettlement conditions, would have a moderate beneficial impact on vegetation and wildlife.	Since there would be a range of ways to reveal glacial features through natural resource management (for example, planting short row crops or short prairie grasses), impacts on vegetation and wildlife would range from negligible to moderately beneficial.	The combination of management prescriptions (almost evenly divided between landscape interpretation, expanded recreational experience, and natural experience) would result in minor beneficial impacts on vegetation and wildlife.	Same as alternative 4.
	Future actions, when considered with the long-term negligible adverse impact on vegetation and wildlife, under alternative 1, would contribute very little to cumulative impacts when considered with the long-term negligible adverse impact on vegetation and wildlife.	If future actions were added to the beneficial impacts of alternative 2, there would be combined long-term minor to moderate adverse cumulative impacts on vegetation and wildlife in the complex. However, the effects would not add to the overall adverse cumulative impacts because alternative 2 actions would all be beneficial.	Cumulative impacts would be the same as described for alternative 2.	Cumulative impacts would be the same as described for alternative 2.	Cumulative impacts would be the same as described for alternative 2.
SOCIOECONOMICS					
	All alternatives would produce beneficial impacts by likely increasing the value of adjacent lands; all alternatives would have adverse impacts on the local tax base if lands were federally owned. Economic impacts could be beneficial or adverse, depending on net property tax receipts.	Same impacts as presented for alternative 1.	Same impacts as presented for alternative 1.	Same impacts as presented for alternative 1.	Same impacts as presented for alternative 1.

TABLE 7: SUMMARY COMPARISON OF IMPACTS OF THE ALTERNATIVES (CONTINUED)

Resource Topic	Alternative 1: No Action, Continuation of Current Management	Alternative 2: Ecological Restoration Emphasis	Alternative 3: Interpretation and Education Emphasis	Alternative 4: Outdoor Recreation Emphasis	Alternative 5: Preferred Alternative
	There would be either long-term beneficial or long-term adverse cumulative impacts on the socioeconomic environment, depending on the nature and scope of any development on adjacent lands and the level of visitation to the complex. All five alternatives would contribute a very small increment to cumulative impacts.				
VISITOR USE AND EXPERIENCE					
	Available activities would offer some beneficial experience for visitors over current conditions, and this alternative would result in negligible to minor beneficial impacts on visitor experience.	Same impacts as presented for alternative 1.	Available activities would offer a beneficial experience for visitors over current conditions, and this alternative would result in minor beneficial impacts on visitor experience.	Available activities would offer a beneficial experience for visitors over current conditions, and this alternative would result in minor to moderate beneficial impacts on visitor experience.	Available activities would offer a beneficial experience for visitors over current conditions; this alternative would result in moderate beneficial impacts on visitor experience.
	The beneficial impacts on visitor experience from each of the five alternatives, when combined with other present and reasonably foreseeable future actions outside the complex, would result in long-term negligible to minor adverse cumulative impacts, depending on the amount and location of development and level of increase in traffic volume. However, the development of the bike path would add a moderate beneficial increment to the overall cumulative impact.	Cumulative impacts would be the same as presented for alternative 1.	Cumulative impacts would be the same as presented for alternative 1.	Cumulative impacts would be the same as presented for alternative 1.	Cumulative impacts would be the same as presented for alternative 1.

