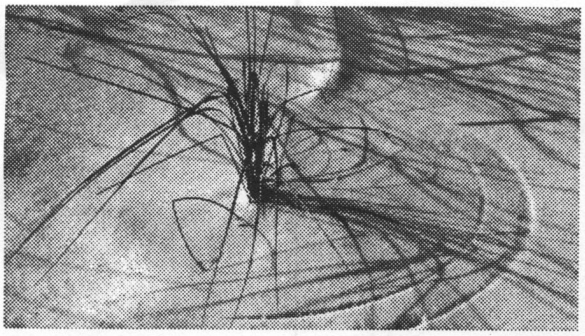

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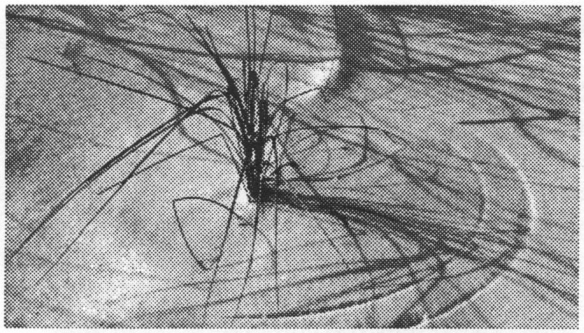


Introduction

PURPOSE OF AND NEED FOR THIS PLAN

This interpretive plan (IP):

- describes interpretation, education, resource stewardship, and visitor experience goals
- recommends ways to achieve those goals through facilities, interpretive media and programs, and access to resources
- provides relevant background information

This is a long-range plan. It will join an annual interpretive plan and an interpretive database to make up a comprehensive interpretive plan for Indiana Dunes National Lakeshore. Intended audiences include park staff, media and facility designers, partners, and regional office and cluster staff.

RELATIONSHIP TO OTHER PLANS

This interpretive plan was prepared in conjunction with a general management plan (GMP) amendment for the East Unit of Indiana Dunes National Lakeshore. The interpretive plan applies to the entire park.

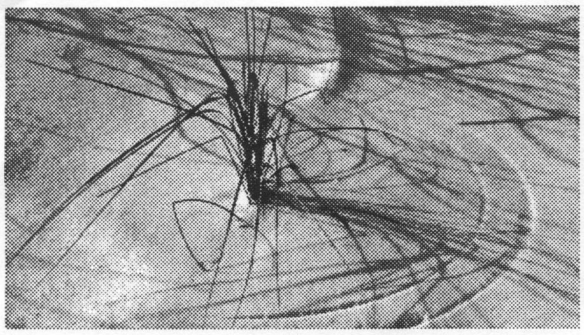
This plan is consistent with the park strategic plan and other NPS plans, such as resource management plans.

To implement the goals and criteria described in this plan, design documents will be prepared.

PLANNING PROCESS

Work on this plan began in March 1995 with a 3-day interpretive planning workshop that was attended by the Harpers Ferry Center (HFC) interpretive planner and members of the park staff. An HFC wayside exhibit planner made a subsequent trip to the park and incorporated recommendations into this plan.

The goals, objectives, and recommendations in this plan represent a consensus of those involved in the planning process.



Park Goals and Significance

LEGISLATIVE HISTORY

Congress designated Indiana Dunes National Lakeshore as a unit of the national park system on November 5, 1966 (PL 89-761) to:

> *. . . preserve for the educational, inspirational, and recreational use of the public certain portions of the Indiana Dunes and other areas of scenic, scientific, and historic interest and recreational value in the State of Indiana . . .*

The act also states:

> *In order that the lakeshore shall be permanently preserved in its present state, no development or plan for the convenience of visitors shall be undertaken therein which would be incompatible with the preservation of the unique flora and fauna or the physiographic conditions now prevailing or with the preservation of such historic sites and structures as the Secretary may designate: Provided, that the Secretary may provide for the public enjoyment and understanding of the unique natural, historic, and scientific features within the lakeshore by establishing such trails, observation points, and exhibits and providing such services as he may deem desirable for such public enjoyment and understanding: Provided further, that the Secretary may develop for appropriate public uses such portions of the*

. . . The Secretary may provide for the public enjoyment and understanding of the unique natural, historic, and scientific features within the lakeshore by establishing such trails, observation points, and exhibits and providing such services as he may deem desirable for such public enjoyment and understanding.

lakeshore as he deems especially adaptable for such uses.

Four subsequent legislative acts amended the original legislation and provided for the expansion of the national lakeshore to its present 15,138 acres.

PURPOSE

These purpose statements reflect the reasons that the area was established as a unit of the national park system. These statements are grounded in the establishing legislation, legislative history, and subsequent supporting documentation.

Preserve, maintain, and restore the integrity and character of natural resources and processes and protect cultural resource values at the lakeshore.

Provide educational, inspirational, and recreational opportunities compatible with preserving natural and cultural resource values.

Inspire in the public an appreciation and a sense of personal stewardship for lakeshore resources.

Interpret, encourage, and conduct scientific research in the tradition of pioneer investigators.

SIGNIFICANCE

Significance statements describe the special character and resource values that make the park important.

The lakeshore contains exceptional biological diversity and outstanding floral richness resulting from the combination of complex geological processes and the convergence of several major North American life zones.

The lakeshore's cultural resources represent the cultural evolution of northern Indiana from prehistoric times to the present day.

The national lakeshore's extensive reach of undeveloped dunes provides recreational, educational, and

inspirational opportunities within a one-hour drive of a major metropolitan area.

The lakeshore offers outstanding opportunities for scientific research due to the diversity and complexity of its natural systems and provides a dynamic laboratory for plant succession and faunal studies.

The presence of heavy industry, long-standing transportation corridors, residential areas, and natural areas at Indiana Dunes offers an outstanding opportunity to show visitors how these elements interrelate.

The dunes provide a striking physical and emotional relief to the surrounding flat and highly developed landscape.

Interpretation or education services help visitors achieve experience goals. Later, they may choose to enjoy the park more on their own.

VISITOR EXPERIENCE GOALS

Visitor experience goals describe what experiences (cognitive, emotional, active, and sensory) the National Park Service wants to make available for visitors to Indiana Dunes National Lakeshore. These provide direction for facility and media design, programs, and partnerships.

Visitors will have opportunities to:

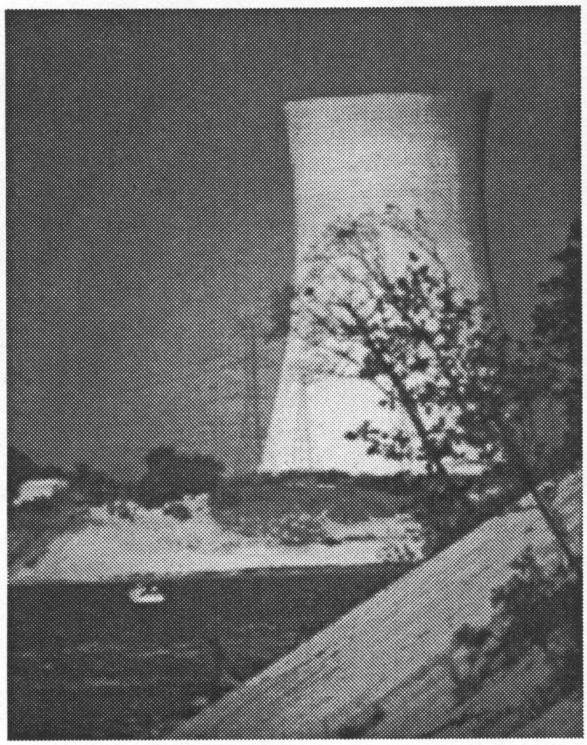
know where they are and how to get where they want to go (wayfinding)

know that they are in a unit of the National Park Service

learn the stories and information summarized in the interpretive themes in ways that are related to their backgrounds, age, learning styles, and interests

understand and appreciate the fragile and dynamic nature of park resources, the importance of resource management and protection programs, and the role of the public in supporting resource preservation here and in the nation and the world

participate in theme-related and resource-related park experiences with reasonable ease and safety



Lakeshore Crescent Dune below Mount Baldy, and with power plant cooling tower in background.

and with minimal deleterious impacts to resources or park neighbors, including opportunities in less-used areas and seasons[1]

visit and understand significant park resources, including dunes, Lake Michigan, wetlands, and historic sites

choose from a variety of opportunities to experience the park alone or in groups, ranging from solitary experiences (such as hiking alone) to social or structured activities (such as festivals or guided walks)

enjoy barrier-free park access, including physical and programmatic access for people with disabilities, cultural or social access for populations with little previous experience in national parks, and economic access, such as readily available transportation

experience personal benefits such as relaxation, enjoyment, education, and inspiration

demonstrate their interest in and commitment to the NPS mission by involvement in activities such as Volunteers in Parks, partnerships, friends groups, or other forms of public involvement

VISITOR EXPERIENCE ISSUES

Orientation

Park visitors are too often confused about where they are, where the park is, how to get to where they want to go, and what they can do when they get there.

Park Identity

Park visitors and neighbors may be unaware that Indiana Dunes National Lakeshore is a unit of the

1. *Theme-related experiences relate to interpretive themes; resource-related experiences are related to or dependent on park resources (e.g., dunes, wetlands; recreational activities such as swimming or hiking; qualities such as quiet or solitude). Preferred experiences also include those with minimal negative impact to resources or the experiences of other visitors.*

national park system. Visitors may think of the park as a beach recreation area and have more relaxed attitudes about allowable activities and resource impacts than they would in other national parks.

Ranger introduces sight-impaired visitor to her first encounter with a snake.

Access

Some neighboring populations use the park at a lower rate than others; barriers to use may include physical (access for people with ambulatory difficulties), social and cultural (park visits may be different than their normal leisure activities; minorities may see few visitors or staff who look or speak like them), or economic (poor people and schools may not have the means for transportation).

Workload

The overall demand and need for interpretive services exceed the capacity of the interpretation division. Priorities and criteria must be refined to ensure continuing quality services while attending to the greatest needs.

Resource Protection

Visitor use may exacerbate resource impacts such as dune erosion, trail erosion, collecting of specimens, trash dumping, and vandalism. Visitor use also enhances enjoyment and increases public support for resource protection.

VISITOR-RELATED RESOURCE PROTECTION ISSUES

Public Support

Public understanding, appreciation, and support of park goals and the agency mission is vital to the success of park operations. Park programs such as fire management, beach replenishment, use restrictions, and control of exotics may not be well understood by the public.

Trail erosion in dunes.

Hiking Off Trails

Visitors walking off trails trample vegetation and increase erosion. This can be especially severe in foredunes and pannes. Social trails have also developed in other areas.

Vandalism and Littering

The park is subject to inappropriate behaviors and use by visitors and neighbors. There may be a perceptions that the lakeshore is a recreation area that deserves less care and respect than more rural national parks.

Vandalism is a concern but not a critical issue. Littering is most evident in areas of high visitor use such as beaches. Several respondents to Visitor Services Project surveys identified litter on the beach as a significant problem; many more respondents commended the Park Service for keeping areas clean.

Plant, Animal, and Artifact Collecting

Many plants in the park are edible or have medicinal value; some may be attractive in landscaping. Capture of animals (especially reptiles and amphibians) for sale in the pet trade is an issue, but the magnitude of the problem is not known. Cultural artifacts such as potsherds and projectile points may be removed by visitors.

Water Safety

Drownings occur in Lake Michigan and in the Little Calumet River. Winter drownings can happen when people walk on unstable shelf ice.

Water Quality

Lake Michigan beaches are occasionally closed in the summer due to high bacteria levels.

Habitat Reduction and Fragmentation

Migration between neighboring habitats is important to many species. Habitat fragmentation (in and outside of the park) interferes with migration. Causes of fragmentation and reduction include roads, utility corridors, interrupted or altered water flows, fire suppression, exotic species, and development in natural areas. Especially sensitive to habitat reduction are endangered species such as the Karner blue butterfly.

Fire Management

The ecological role and benefit of many natural or prescribed fires is poorly understood by park visitors and neighbors. The park fire management program includes effects, such as smoke and a burned landscape, that can be misunderstood. Public support is important to the success of this program.

Exotic Species

Nonnative species of plants and animals are living in the park. They compete with native species for habitat.

Priorities

Park resource management and interpretation staff have devised strategies for educating park visitors and neighbors about resource management issues. The following issues were given priority:

beach erosion and nourishment
Karner blue butterfly / endangered species
fire
water quality (E. coli and rip currents)
habitat loss
protection of cultural resources
Native American history
exotic plants (ornamental) and animals (feral)

Park staff developed interpretive strategies to address the eight priority issues. Park staff will meet biannually to exchange information and evaluate progress; informal contacts will also continue.

Additional issues identified included wildlife restoration, littering, inappropriate recreation, illegal collection of natural and cultural resources, and off-trail use.

TREATMENTS

Interpretation and education can encourage beneficial treatment of resources and can minimize negative impacts.

Interpretation and education can encourage beneficial treatment of resources and can minimize negative impacts. Outreach and education programs can target key groups and can reach previously uninvolved audiences. Targeted communication strategies can present messages effectively to various audiences and can galvanize public appreciation and support.

Interpretive media and programs will help visitors and park neighbors understand and appreciate the need to preserve wildlife habitat, which would result in public awareness and support for habitat preservation. Similar effects can be expected with programs to support cultural resource preservation.

To reduce damage caused by social trails, visitors should be informed about the damage caused by off-trail hiking. The time to inform them is when they are making the decision whether or not to leave the trail. This message could be provided by a wayside exhibit, small sign, or personal contact (Vande Kamp 1994).

Messages should have multiple levels that address the variety of visitor motivations and justifications for their behaviors. (Dustin 1985; Christensen 1992) At a minimum, interpretation could briefly describe the expected behavior and the reasons why that behavior is expected (Cialdini 1984) as well as an explicit description of the penalty for violations (Vande Kamp 1994).

Repetition is also important. Messages could be incorporated into trail brochures or maps, be summarized at the trailhead (on a sign or wayside or in a bulletin case), and be included in personal interpretation and education programs and informal contacts. Areas with serious problems could be patrolled by uniformed rangers.

Interpretation can significantly reduce vandalism and other damaging behavior.

Interpretation can significantly reduce vandalism and other damaging behavior. One strategy is to explain the problem, describe proper behavior, and encourage a

sense of ownership or stewardship (Roggenbuck 1982). Education programs (especially offsite programs) can be especially effective since they can contact people who ordinarily might not attend public programs. Some programs should also be targeted to teenagers, who may contribute a disproportionate amount of damage (Vande Kamp et al. 1994). Youngsters can be encouraged to pick up litter by providing rewards such as patches, Junior Ranger program credit, or tokens redeemable by the cooperating association or concession. As with other attempts to influence behavior, a variety of messages and media should be used — especially for the most severe problems (Vande Kamp 1994).

Interpretation and education can highlight the status of populations threatened by human actions and emphasize the importance of stewardship. Direct contact with live animals can be the most effective way to affect children's attitudes about nature (Kellert 1983). Interpretive media and personal contacts can inform beach, lake, and river users of dangers. Wayside exhibits should be placed in clear view along walkways; repetition of important messages should be considered; and language should be active, direct, and compelling.

Direct contact with live animals can be the most effective way to affect children's attitudes about nature.

INTERPRETATION PROGRAM GUIDELINES

General approaches to meet visitor experience goals and address visitor experience issues include:

Visitor (customer) service and resource protection will be the responsibilities of all park staff.

A professional, diverse, and effective interpretation, education, and visitor services program will facilitate visitors' understanding, enjoyment, appreciation, and stewardship of park resources.

Interpretive messages will be communicated through a variety of methods and media.

Interpretation and education will emphasize primary interpretive themes. Methods and media will be chosen to maximize communication effectiveness, match visitor use patterns, and enhance management efficiency.

Interpretation and education will emphasize primary interpretive themes. Methods and media will be chosen to maximize communication effectiveness, match visitor use patterns, and enhance management efficiency.

A new, strategically located visitor center will provide orientation, interpretation, education and visitor services. Those arriving at other entrances will also receive important resource interpretation and protection messages.

Developments and programs for visitor use will provide a variety of visitor experience options.

Interpretation and education will be designed to provide access and services for everyone.

Public involvement in interpretation will continue through programs such as Volunteers in Parks, cooperating associations, friends groups, and partnerships.

INTERPRETIVE THEMES

Interpretive themes are those ideas, concepts, and stories that are central to the nature and significance of the park. Other ideas may also be interpreted, but those described below are the most important and will be the most accessible to visitors. Themes are described in several levels of complexity.

Diversity

Park ecosystems support an exceptional diversity of plants, animals, and ecosystems. This diversity can be understood at four levels: genetic, species, community, and ecosystem.

Indiana Dunes National Lakeshore protects one of the highest number of plant species in the national park system.

The Karner blue butterfly is a federally listed endangered species; the Pitcher's thistle is federally listed as threatened; 26% of the state-listed threatened, endangered, and rare species live in the park. Many other species of plants and animals are susceptible to disturbance or have a narrow range of habitat preferences.

The park contains elements of biomes such as the central grasslands, eastern deciduous woodlands, and

northern coniferous forests. Habitats are varied, often small and fragmented and set within a largely residential, agricultural, and industrial region.
Many species of animals have been eliminated in the park since the arrival of Europeans. Causes include loss of habitat, habitat fragmentation, air and water pollution, uncontrolled hunting, and competition with introduced exotic species. Some species have returned.

There are many park programs to maintain biological diversity. These include fire management, control of exotics, restoration of disturbed areas, restoration of natural species, maintenance and expansion of migration and habitat corridors, restoration of natural hydrologic regimes, and interpretation and education programs.

People and the Land

People have lived in and around the dunes for many thousands of years; each group adapted to and modified their environment; the current landscape reveals the effects of this cultural succession.

Evidence of American Indian occupation of the park area dates at least to the Archaic Era, some 6,000 years ago. Through Woodland times, people lived in scattered camps, moving seasonally to harvest a variety of resources.

Indian contact with Europeans in the Calumet region dates to the early 1600s. French-Canadian Joseph Bailly and his wife Marie were early fur traders and missionaries who established their homestead on the banks of the Little Calumet River in 1822.

Extensive wetlands south and east of the Calumet Region hindered 19th-century settlement. By 1839 Native Americans had been removed from the Calumet region, and their places were taken by Americans of mostly European descent. The Chellberg farm is a typical immigrant family farm that characterized the rural Calumet region from the late 1800s to the early 1900s.

The late 19th and early 20th century saw the arrival of major industry, most notably U.S. Steel in Gary, Indiana, in 1905. Good transportation, access to raw materials, cheap and unoccupied land, and nearby markets fueled the industrialization of the Calumet region. Industrial growth waned in the 1970s and 1980s but left an urban and industrial landscape juxtaposed with rural and natural settings.

Transportation corridors around the southern end of Lake Michigan evolved from trails to roads and railroads to highways. Maritime transportation routes, whether plied by canoe or supertanker, have long tied southern Lake Michigan to distant people and resources.

As industry moved into the Calumet region, public support increased for preserving and enjoying the Indiana dunes. The environmental impacts of 20th-century industrial and urban growth and park preservation have far exceeded the effects of previous land uses.

Succession

Ecological succession describes changes in species composition in an area over time as an environment changes; organisms that are better adapted to the changed environment replace the earlier inhabitants. Some of the earliest and most significant research on ecological succession was conducted early this century in the Indiana dunes; succession is a major factor in creating the dune landscape.

One of the first to identify the factors involved in ecological succession was Dr. Henry Cowles of the University of Chicago. Dr. Cowles studied the Indiana dunes and described the pattern, moving out from the lake, of successively older ecosystems. Other significant ecological research in the Calumet region was conducted by John Coulter, Victor Shelford, Jerry Olson, and others. The park continues to emphasize ecological research.

The Indiana dunes are well suited to the study and understanding of succession. Classical stages of dune succession are characterized by their dominant vegeta-

tion. Countless variations on this classical pattern exist, as do microhabitats within larger ecosystems.

Great Lakes

Lake Michigan has been a major factor in shaping the landscape of the Indiana Dunes.

The Great Lakes contain 20% of all fresh surface water in the world; Lake Michigan is the third largest (in volume) of the Great Lakes and the sixth largest lake in the world.

The massive Great Lakes affect the weather for surrounding areas. Violent storms often have threatened shipping and recreational boating.

Lake Michigan has about 14 million people in its watershed and sits on relatively soft sedimentary rock and fertile soil. The high population density and windblown soil exacerbate the effects of nutrient and toxics pollution. Like all lakes, the Great Lakes affect and are affected by surrounding activities.

The Great Lakes provide benefits such as transportation, drinking water, fishing, waste disposal, recreation, and industrial uses. Some of these benefits have decreased due to human-caused changes such as overfishing, pollution, and introduction of exotic species. Human activities affect the health of the Great Lakes ecosystem.

Conservation

Indiana Dunes National Lakeshore and State Park were forged from a history of citizens' commitment to preserving the areas' sensitive landscape, plants, and animals; this commitment continues today.

Around 1890, artists and scientists began enjoying, painting, writing about, and studying the dunes. Preservation and enjoyment of this landscape were advocated by progressive thinkers; the cause was joined with populist and settlement house movements that championed the rights of all citizens.

Stephen Mather, the first director of the National Park Service, first proposed a Sand Dunes National Park in 1916. His proposal wasn't enacted, and the fight to preserve the dunes fell largely to the public for the next 50 years. Indiana Dunes State Park was established in 1923. Other efforts were undertaken by organized groups and individuals. Senator Paul H. Douglas of Illinois was a key and indefatigable proponent. The park was finally created in 1966; it is legally dedicated to the memory of Senator Douglas. The visitor center is dedicated to the memory of Dorothy Buell, a conservationist who fought for the preservation of the Indiana dunes and was a president of the Save the Dunes Council.

Public involvement affects park operations and planning. Along with the continuing interest of conservation organizations, many park neighbors and area residents are involved in issues affecting the park and the region. Hundreds of area residents volunteer their services to help preserve and interpret the park. Partnerships with other agencies and organizations are necessary to accomplish park goals.

Informed cooperation and involvement by park visitors and neighbors is required for the preservation of resources and recreational opportunities. Decisions on visitor use of the park will emphasize minimizing negative impacts on resources and the experiences of others while maximizing positive impacts.

Science

For more than a century, the Indiana dunes have been a focus of scientific research designed to understand, preserve, restore, and benefit from our natural and cultural environment.

Most park habitats are tiny remnants of formerly extensive dunes, wetlands, forests, prairies, and beaches. A century of science in the Indiana dunes includes the work of John Coulter, Henry Cowles, Victor Shelford and many others. The park supports a major scientific effort to protect these remaining ecosystems by documenting their residents, understanding their relationships and functions, and developing strategies to protect and in some cases restore natural systems.

Archeological research provides an understanding of past lives through the study of physical remains.

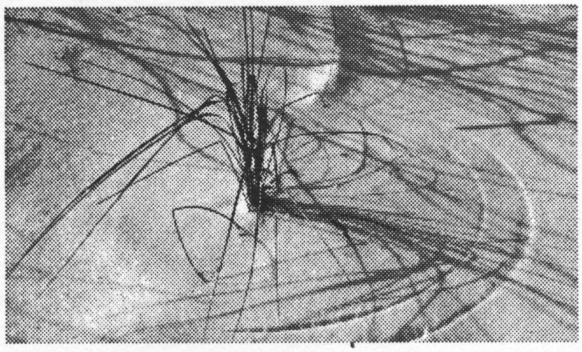
Recreation

There are many, varied year-round recreational opportunities in the park and surrounding areas. Public support of low-impact and sustainable recreation is required for the protection of resources and the continuing availability of resource-related recreational experiences.

Geological History

The visible geology of the Indiana dunes derives largely from the Wisconsin glacial advance and post- glacial period. The advance of the Wisconsin glacier some 100,000 years ago carved out the basins for the Great Lakes and transported rock and sediment to the south. The glacial retreat left sediment in moraines and revealed carved-out depressions called kettles, one of which became Pinhook Bog.

Other glacial sediments were transported by lake currents to beaches and blown inland to form dunes. Dune ridges become successively older as they proceed south from Lake Michigan.



Existing Conditions

Exceptional biological diversity was a primary reason for the establishment of the park.

The park lies at the southern end of Lake Michigan. It stretches from Gary, Indiana, on the west to Michigan City, Indiana, on the east and includes 15 miles of lakefront. The East Unit and West Unit are separated by industrial and residential land. Five other separated units are Hoosier Prairie, the Heron Rookery, Pinhook Bog, Hobart Prairie, and Calumet Prairie. Park habitats include lacustrine, open beach, pioneer dunes, stabilized dunes, oak savannah, mesic forest, prairie, freshwater swamp and marsh, and bog.

Indiana Dunes lies in several ecological transition zones, where northern conifers meet hardwood forests of the southern and northeastern United States and the tallgrass prairies of the Midwest. Succession of ecological communities has resulted in changes in species composition that progress south from Lake Michigan where there are successively older dune ridges. Exceptional biological diversity was a primary reason for the establishment of the park.

AREAS OF THE PARK

Miller Woods lies at the far western end of the park and includes oak savanna, interdunal ponds, foredunes, and beach. The **Paul H. Douglas Center for Environmental Education** is located here.

West Beach is the largest and busiest beach area and includes beach, foredunes, forested dunes, disturbed prairie, and wetlands. The **Marquette Bike Trail** runs from West Beach to the town of Miller.

Inland Marsh lies south of West Beach, and includes oak savannah, prairie, and wetlands. Public use includes hiking and cross-country skiing.

To the west of Inland Marsh is the **Tolleston** area, which is mostly oak savannah and wetlands. There are no visitor facilities; public use is rare and unsupervised.

Bailly-Chellberg includes the **Bailly Homestead** (the restored site of a 19th-century fur trade, missionary, and mercantile establishment) and **Chellberg Farm** (a restored late 1800s to early 1900s Swedish immigrant farm). It also includes the **Good Fellow Camp**, which is being developed for residential environmental education programs, and the **park headquarters**. Much of this area features beech/maple and oak/hickory forest growing on glacial moraine.

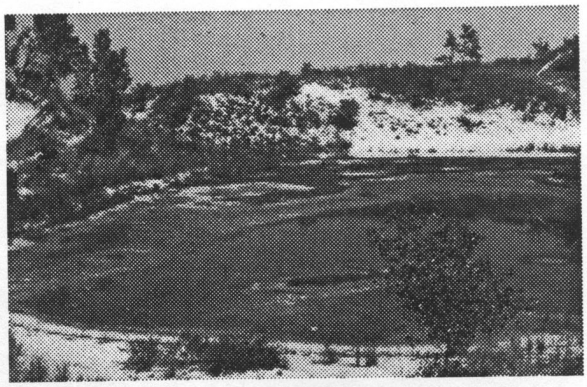
Cowles Bog is a national natural landmark and includes several ecosystems. The core wetland area is actually a fen (not a bog) with alkaline water flowing upward from a pressurized aquifer. A trail ends at a relatively remote beach (can be accessed only by hiking or by boat).

Porter Beach is a small public beach with several private residences. Directly south is the small but relatively undisturbed **Howes Prairie**.

The **Great Marsh** originally stretched from east to west across the Calumet region from present-day Illinois to Michigan. It now runs parallel to and north of U.S. Highway 12 from Miller to Michigan City. The water is channeled, dammed, and ditched in many places. The **Calumet Bike Trail** borders the marsh and Highway 12.

Tremont lies south of U.S. 12 and contains oak-hickory forest, wetlands, and recovering disturbed areas. The **visitor center**, a maintenance area, a picnic area, and the Ly-Co-Ki-We Trail are in this area.

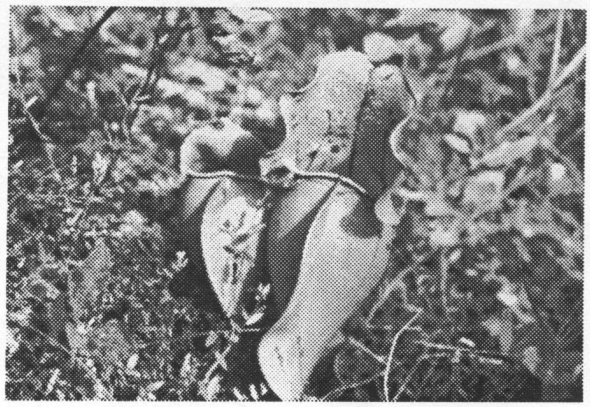
Beverly Shores includes a residential development completely surrounded by the park. The area consists primarily of wooded dunes and wetlands with scattered residential sites. **Kemil Beach** and **Central Avenue Beach** provide public access to Lake Michigan. Cultural



Interdunal pond and dunes at West Beach.

resources include five World's Fair houses and three Lustron houses.

Mount Baldy, next to Michigan City, is the largest dune in the park. Newly acquired **Crescent Dune** is immediately adjacent. It includes a beach and wooded dunes.



Pitcher plant (above) and sundew (below) are among carnivorous species at Pinhook Bog.

Pinhook Bog, a national natural landmark, is a glacial relic peat bog that contains an unusual array of plants, including several carnivorous species. Visitation is limited to guided tours along a boardwalk.

The **Heron Rookery** is a nesting area for great blue herons in a beech/maple forest along the Little Calumet River. A trail parallels the river on the opposite bank from the heron colony's tree-top nesting site to protect the resource. Fishermen frequently use the trail to get to the river.

Hoosier Prairie is a small tallgrass prairie southwest of the park near Highland and Griffith. It is occasionally used by visitors on guided tours and by neighbors.

A variety of development abuts the lakeshore boundaries, including urban, agricultural, and low-density residential land. Roads through the park serve visitors and local residents as well as regional industrial and commercial users.

Public use concentrates on the beaches during the warmer months. Other areas that receive substantial use include Chellberg Farm and Bailly Homestead.

INTERPRETIVE AND CULTURAL FACILITIES

The **Dorothy Buell Visitor Center** was built in 1959 as a church and was converted to a visitor center in 1975. It has three stories. The middle floor contains the bookstore, information area, exhibit area, and auditorium. It is presently wheelchair accessible by request through a back door to the auditorium; planning will begin in 1997 to improve access to the middle floor. The lower floor contains mostly offices and is accessible at grade. The upper floor (not accessible) contains offices, a library, storage space, and a projection room.

Visitation to the center was 58,179 in 1995. The visitor center is open 362 days a year.

The **Bailly/Chellberg Contact Station** is at the trailhead for the Bailly/Chellberg loop trail. It contains a small exhibit area, an information and sales area, and restrooms. Restrooms are open daily, and the interpretive area is generally open on weekends from March through October. Visitation at Bailly/Chellberg contact station was 22,707 in 1995.

The **Bailly Homestead** is a restored national historic landmark. It was settled in the early 19th century by a French-Canadian fur trading family; most visible construction reflects later additions. There are five structures; two are open periodically to the public through guided tours or attended stations. The site is also used for festivals and living history programs. The Bailly family cemetery is accessible by trail.

The **Chellberg Farm** is part of a Swedish farming district. The farm comprises seven restored historic buildings, fields, farm animals, a woodlot, and a contemporary pole barn and storage building. The farm is open daily.

The **West Beach Contact Station** contains a small exhibit area, an information area, and restrooms. The contact station receives little use and is closed during months of heavy beach use. In 1995, 5,357 people visited. Primary visitor contact in this area is made by roving interpreters.

The **West Beach Bathhouse** information area is unattended and is set up to provide self-serve information.

The **Paul H. Douglas Center for Environmental Education** is at the edge of Miller Woods in Gary, Indiana. It contains educational activity areas, an audiovisual/multipurpose room, live animals for programs, and an outfitting area for winter programs. Trails (including an accessible trail and boardwalks) provide settings for outdoor activities. It is open weekdays for scheduled group programs. Visitation at the Douglas Center was 9,549 in 1995.

There are an estimated 50,000 teachers within field-trip distance of the park. Formal educational programs are provided at sites throughout the park for groups of nearly all ages.

INTERPRETIVE PROGRAMS

Environmental and Heritage Education

There are an estimated 50,000 teachers within field-trip distance of the park. Formal educational programs are provided at sites throughout the park for groups of nearly all ages. Parkwide programs numbered 3,215 for 82,599 participants in 1995. Indoor facilities for education programs include the Paul H. Douglas Center for Environmental Education, the Dorothy Buell Memorial Visitor Center auditorium, two contact stations, and several historic buildings at Bailly and Chellberg. Groups include schools, scouts, community and other agency-sponsored programs. Most program requests are from the third, fourth, and fifth grades.

Formal Public Programs

NPS staff and volunteers provide onsite guided walks and interpretive talks year round. In 1995, 813 programs were attended by 54,680 people. Most public programs are offered daily in summer and on weekends the rest of the year. Interpretive talks are given mostly in the visitor center auditorium. Guided walks are given throughout the park.

Two major festivals, Maple Sugar Time and Duneland Harvest Festival, are held each year at the Chellberg Farm. Attendance at Maple Sugar Time was 9,635 public and 4,183 students in 1995; 13,000 public and 7,923 student visitors attended the Duneland Harvest Festival that year.

Informal Public Programs

Attended information areas can be found in the visitor center and the Bailly ranger station (protection staff). Two contact stations are open seasonally. Informal (unstructured) interpretation and information is provided at many sites, especially the historic sites and beach use areas, by interpreters, patrol rangers, maintenance personnel, and volunteers.

Offsite Programs

A variety of offsite programs are given to groups who request them. Due to budget restrictions, fees are charged for offsite programs.

Outdoor Interpretive Media

Outdoor interpretive media include the park map and guide, several site bulletins, three trail brochures, bulletin cases, and wayside exhibit panels.

The free map and guide is available to visitors and by phone or mail. Site bulletins are produced by park staff on such topics as Chellberg Farm and resource management issues. One brochure interprets the 1-mile loop trail behind the visitor center; another interprets a 2-mile loop trail at Bailly/Chellberg; the West Beach trail brochure interprets a 1-mile trail to the beach. Bulletin cases and trail signs are in contact station parking lots, at trailheads, and in beach access areas. Wayside exhibits are located at West Beach, Miller Woods, Inland Marsh, Bailly Homestead, Chellberg Farm, Lakeview, and Mount Baldy.

Other Interpretive Facilities in the Area

Indiana Dunes State Park is surrounded by the national lakeshore and Lake Michigan. It offers a swimming beach, campground, and nature center as well as hiking trails, interpretive programs, and concessions. Roughly the eastern half of the state park is a nature preserve; most of the park includes undeveloped natural areas. The state park predates the national lakeshore. The National Park Service and Indiana State Parks cooperate on many aspects of interpretive programming, including publicity and a common friends' group.

Other public interpretive programming is available at Warren Dunes State Park in Michigan and through several nearby cities and counties.

Many organized groups provide interpretive services for their constituencies. Schools study curricula that relate to park resources or themes, and many either

provide or seek field experiences to teach those curricula.

Biological diversity is considerable in the park. Here jack pines, a northern coniferous species, grow next to grasses typical of more southern and western ecotones, and eastern deciduous species (oak, basswood) grow on a distant dune ridge.

THE REGION

The Calumet region comprises northwest Indiana at the southern end of Lake Michigan and adjoining sections of Michigan and Illinois. It includes cities, towns, and industrial parks in addition to farms, woods, wetlands, prairies, dunes and beaches. The Valparaiso moraine marks the farthest extension in this area of the Wisconsin glaciation (which ended about 18,000 years ago). Lake Chicago, ancestor of Lake Michigan, formed behind the moraine. Successive lake levels left four major dune systems that mark the edges of the receding lake. These dunes host successively older ecological communities south of the lake.

The region has long been a transportation corridor. Several Indian trails traversed the region; today railroads and roads (including two interstate highways) carry travelers past the Indiana dunes.

The region is mostly cold and snowy in winter and warm in summer. Summer temperatures are cooler than more inland areas because of the moderating effects of Lake Michigan. Annual precipitation averages about 40 inches. The prevailing wind is from the southwest; dominant winds are from the northwest.

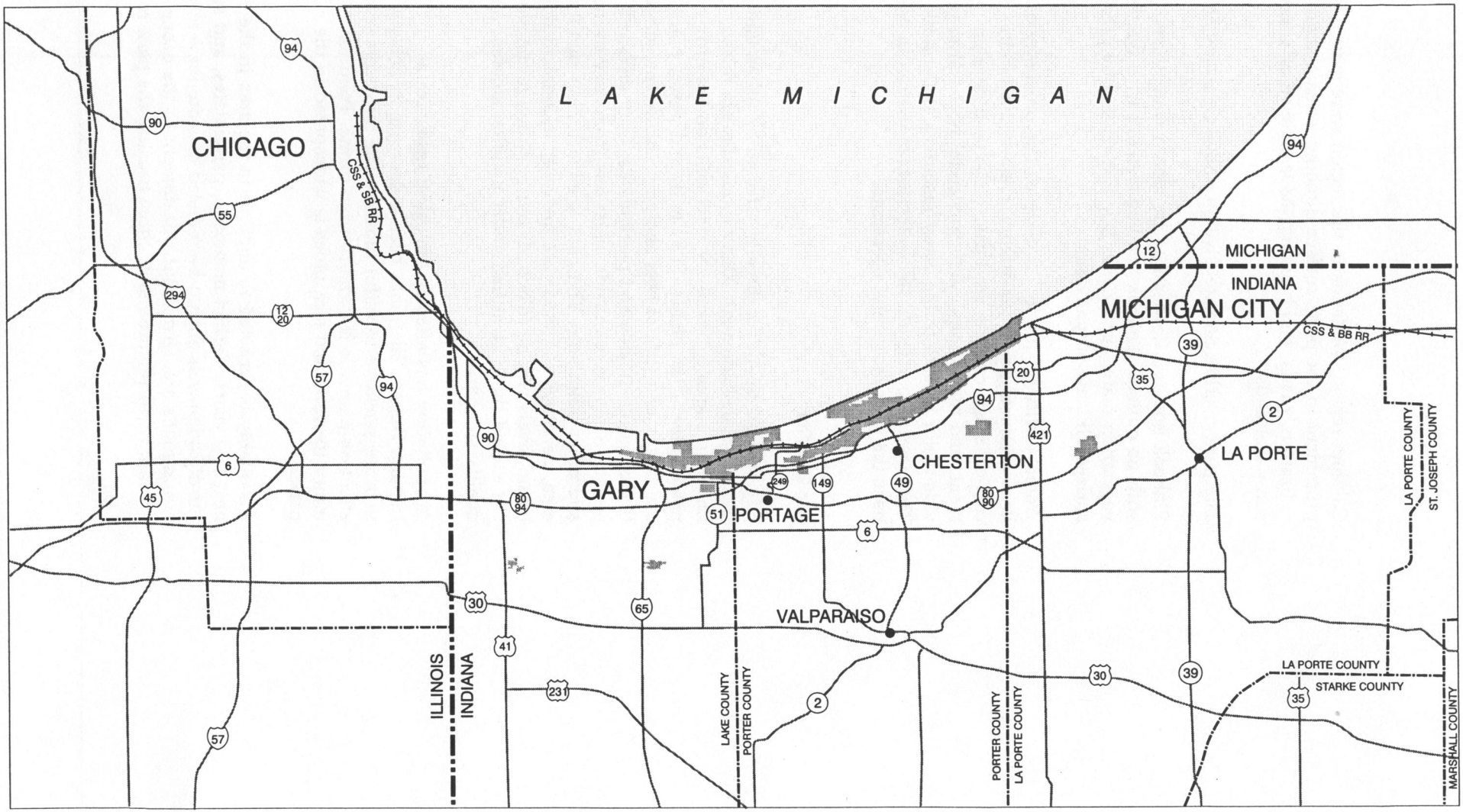
Outstanding scenery can be found in many areas throughout the region.

More than 1,100 species of native vascular plants have been identified in the Indiana dunes area.

The region is biologically diverse. More than 1,100 species of native vascular plants have been identified in the Indiana dunes area. There are 290 exotic plant species in the park, and more than 10% of these exotic plants threaten the ecology of the dunes.

Water Quality

Surface water resources include Lake Michigan, the Little Calumet River, Grand Calumet River and tributaries, ponds, wetlands, Cowles and Pinhook Bogs, and numerous drainage ditches. The largely channelized Kankakee runs along the southern boundary of the



North

INDIANA DUNES NATIONAL LAKESHORE

REGION

Indiana Dunes National Lakeshore
United States Department of the Interior
National Park Service
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Calumet region. Wetlands in the region were more prominent in the past; surface ditching, stream channelization, roads, and buildings have claimed or altered many wetlands.

The park overlies an extensive groundwater reservoir.

Pinhook Bog and Cowles Bog are closed watersheds with no outlets. Pinhook is a bog wetland with floating vegetation mats, and Cowles Bog is a fen fed by pressurized alkaline groundwater.

Water quality is an important issue. The proximity of heavy industry, poor air quality, major transportation corridors, agricultural land use, residential development, and recreational and commercial boat traffic provide major threats to the water resources at the park. There has been significant water contamination in and near the park on several occasions.

Air Quality

Regional air quality is directly affected by urban and industrial development. Many industries are in the immediate area, particularly steel mills and electric power generation plants. Steel mills and power plants use large quantities of coal and emit significant quantities of sulfur dioxide and particulates. Steel mills can also be a source of organic emissions from coke ovens and other pollutants. The park is a class II air quality area, denoting that moderate increases in ambient pollution levels will be tolerated, but pollution levels must not exceed those identified under national ambient air quality standards.

Air pollution has affected biological resources at Indiana Dunes. There has been a decrease in lichens that are sensitive to sulfur dioxide. The most common effect on plants is leaf injury from ozone. Pollution injury to white and jack pines is widespread in the park.

Air quality is expected to improve in the area in the next few years. Carbon monoxide, particulates, and sulfur dioxide levels should be reduced as state implementation plans are carried out. Attainment of the ozone standard will require much effort because the park is

part of the Chicago metropolitan area, which is one of the worst ozone problem areas in the nation.

Noise

Noise from urban and industrial development in the region often obscures natural background noises. From a legal and regulatory standpoint, sound levels are not considered a major environmental problem.

REGIONAL HISTORY

Little is known about the region's prehistoric occupants. Archeological evidence suggests mostly transient and dispersed habitation. Indians came to the area in the summer and then migrated south to the Kankakee River area for the winter. Burial mounds were found by early settlers in the Tremont area, but the mounds were destroyed before they could be studied.

The first Europeans in the area were the French, who came to convert the Indians to Christianity and to engage in the fur trade. Indians living in the general area were the Potawatomie, Miami, Mascouten, Shawnee, and Wea.

Indiana was established as a state in 1816. The treaties of Mississinewa (1826) and Tippecanoe (1832) allowed federal purchases of Indian land, opened the way for white settlers, and ended the era of Indian dominance of the Calumet region.

The first fur trading post near the park was Petit Fort, which was built in the early 1750s in what is now Indiana Dunes State Park. The first permanent white settlement in Porter County was established by Joseph Bailly, who left Canada to pursue the fur trade. Bailly built a trading post and home in 1822 on the Little Calumet River. In the 1820s Bailly opened a tavern on the Chicago-Detroit road north of the homestead and laid out a town (Baillytown), which never really came into being.

The Michigan Road between Michigan City and Indianapolis and a lakeshore stage route between Michigan City and Chicago were both completed in

Conservationists wanting to protect the Indiana dunes began pressing for a national park before World War I. The first director of the National Park Service, Stephen Mather, testified before Congress in favor of establishing a national park in the dunes, but Congress failed to pass a bill.

1833. These access improvements made white settlement possible.

In the 1860s Swedish farms began to dot the landscape near the Bailly homestead. The farmers raised crops for their own needs and to sell in regional markets.

By the late 1800s ditching and draining of the wetlands began in earnest. This widespread ditching, along with excessive commercial harvesting, contributed to the destruction of local cranberry bogs. Former wetlands became available for agriculture and residential and industrial development.

During the 1880s sand mining companies hauled huge quantities of sand from the dunes for use in Chicago landfills and building industries.

In 1905 the Illinois Steel Company, a predecessor of U.S. Steel, purchased land near the mouth of the Calumet River and built a steel manufacturing plant. A new community, named after the corporation's finance committee chairman, Elbert H. Gary, was created nearby.

Conservationists wanting to protect the Indiana dunes began pressing for a national park before World War I. The first director of the National Park Service, Stephen Mather, testified before Congress in favor of establishing a national park in the dunes, but Congress failed to pass a bill. After the war a state park movement mobilized, culminating in the establishment of Indiana Dunes State Park in 1925. Writers, artists, naturalists and scientists such as Carl Sandburg, Earl Reed, Frank Dudley, Donald Culross Peattie, Edwin Way Teale, John Coulter, Henry Cowles and Victor Shelford helped describe and lead a growing movement to enjoy and save the Indiana dunes. Families and groups such as the Prairie Club rode out for dune outings on the South Shore Railroad from Chicago. Several early movies were shot in the Sahara-like dune expanses. Increasing appreciation of the natural shoreline environment also encouraged the development of private resorts and residential areas.

Midwest Steel finished leveling the area around Burns Ditch in 1929. After World War II steel companies

revived the question of a harbor in the Dune Park area, while other concerned citizens renewed the idea of establishing a national park. In 1955 the Save the Dunes Council bought Cowles Bog to secure it from development. The next year Bethlehem Steel bought contiguous property.

In 1958 a national park bill was introduced into Congress. It included the land belonging to Midwest, Bethlehem, and a power company. However, dunes on these lands were leveled before Congress could pass a bill. In 1966 bills for both a harbor and a national lakeshore were passed.

Historical Resources

Indiana Dunes National Lakeshore has the following properties that are on or eligible for the National Register of Historic Places.

National Register of Historic Places

Property Name	Status
Bailly Homestead and Cemetery	national historic landmark
Century of Progress Architectural District	national register
Good Fellow Club Youth Camp	nomination prepared
Swedish Farming District	declared eligible
Lustron Houses	declared eligible

Bailly Homestead and Cemetery

Five structures and a nearby cemetery associated with the Bailly family are listed on the National Register of Historic Places as the Joseph Bailly Homestead and Cemetery Historic District. The homestead itself is a registered national historic landmark. The exterior of the buildings have been restored. The main house, a 2½-story frame building, was begun the year of Joseph Bailly's death. It is not known when it was completed. The house was substantially remodeled and has been restored to its 1917 appearance.

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Chellberg Farm / Swedish Farming District

The Chellberg Farm district is historically significant because it represents the ethnic heritage of Swedish settlements in Porter County, Indiana. Anders and Johanna Kjellberg, who had migrated from Sweden in 1863, established their farm in 1874.

The Park Service acquired the Chellberg farm in 1972 and began renovation in 1979. Renovation of the interior of the farmhouse and the comprehensive *Farm Management Plan* were completed in 1991.

World's Fair Houses

The world's fair houses were constructed as demonstration models for the Chicago Century of Progress Exposition in 1933. Part of the exposition was a collection of houses built to show the impact of modern technology on residential architecture and to show the latest innovations in house design, furnishings, and equipment.

After the fair closed in 1934, Chicago developer Charles Bartlett purchased six of the houses. He loaded them onto barges and moved them across Lake Michigan to Beverly Shores, a new resort town he was developing on the lakeshore. When the park was established in 1966, five of these homes were included within its boundaries.

Lustron Houses

These are prefabricated, porcelain-steel houses built in response to post-World War II housing shortages. About 3,000 were built; three houses are in the park.

Camp Good Fellow

The Good Fellow Club, an organization made up of Carnegie Illinois Steel Corporation workers, developed the Good Fellow Camp to provide outdoor recreation for urban children.

The lodge, which is eligible for the national register, was the main structure of the camp. The camp also included cabins and a steel swimming pool. The camp was closed in 1975 and the Park Service acquired the property in 1977. Planning and restoration are underway.

Railroad Cars

The South Shore Railroad is the last electric interurban railroad in the country that regularly serves both passengers and freight. In the 1920s it was the principal means of transportation for visitors to Indiana Dunes State Park, and today its trains regularly traverse Indiana Dunes National Lakeshore. The railroad played a major role in the development and recreation of northwestern Indiana.

The Park Service purchased 10 railroad cars in 1984; nine more were donated by the Northern Indiana Commuter Transportation District. All were used between 1926 and 1933 and have been added to the park's museum collection. Of the original 19 cars, 12 have been loaned to museums for preservation and exhibition. Three cars have been restored.

Archeological Resources

The Midwest Archeological Center initiated a parkwide survey of archeological sites in 1992. This was the first of a four-year field investigation aimed at estimating the number and distribution of sites in the lakeshore. The center will publish a final report summarizing the results.

The work completed to date indicates that the park has a high density of archeological resources with good to excellent research potential (NPS 1992a, 1992b). Preliminary results show that the area has a large number of relatively small but intact sites.

Previous East Unit studies include a field assessment (Honerkamp 1968), a small excavation at Bailly Homestead (Limp 1974), and a study at Bailly (Munson 1976).

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The work completed to date indicates that the park has a high density of archeological resources with good to excellent research potential.

Cultural Landscapes

The Park Service is in the process of preparing an inventory of all park landscapes that are potentially eligible for the National Register of Historic Places.

THE AUDIENCE

Recreational visits totaled 1,696,488 in 1995. Roughly 1,700,000 people visited in 1994; this represents a decrease from the 1993 level of 1,763,100, and from 1,973,000 visitors in 1992. Decreases are thought to result from weather and changes in counting procedures.

The following visitor information and patterns were excerpted from two Visitor Services Project (VSP) surveys of park visitors over a one-week period. The first was conducted from July 12-18, 1993. Visitors were sampled at Mount Baldy, Lake View, Dorothy Buell Visitor Center, West Beach, Indiana Dunes State Park, and the Bailly/Chellberg area. The second survey questioned two audiences: a sample of Duneland Harvest festival attendees on September 17 and 18, 1994, and general park visitors from September 17-23, 1994. General park visitors were surveyed at the same locations as in 1993. Refer to VSP reports (Littlejohn 1995, Madison 1994) for study details and methodology.

Below are summaries of findings.

Visitor Services Project Report Summary, July 1993

Visitors were often in family groups (55%). Thirty-five percent of visitor were 15 years old or younger; 42% were 21-50 years old. Most (60%) had visited Indiana Dunes previously.

Visitors from foreign countries comprised 4% of the visitation. Sixty-eight percent of the U.S. visitors came from Indiana and Illinois. There were smaller proportions from many other states.

Most visitors (56%) spent 24 hours at Indiana Dunes National Lakeshore. Walking on the beach (61%), sun

bathing (52%), and swimming (51%) were the most popular activities during their visit. Swimming (72%), walking on the beach (70%), and sun bathing (64%) were the most common activities the visitors listed as activities they participated in during past visits.

Mount Baldy was the most visited park site (62%). Fifty-six percent visited Indiana Dunes State Park. Half (50%) visited West Beach, and 43% used the visitor center.

Visitors most often used previous visits (57%) and advice from friends and relatives (45%) as sources of information about the park.

The most used facilities were the parking lots (87%), restrooms (76%), and the trails (54%). The trails, picnic areas and shelter houses, parking lots, and campgrounds received the highest quality ratings.

Directional signs (71%), informational signs (60%), and uniformed park staff (51%) were the most used interpretive and informational services at Indiana Dunes. The trail maps, the visitor/nature center, and regulation signs received the highest quality ratings.

Visitor Services Project Report Summary, September 17-23, 1994

Festival Visitors. Sixty percent of general visitors were in family groups. Over one-third (35%) of all festival visitors were 15 years old or younger. Three-fourths (75%) were repeat visitors to Indiana Dunes.

There were no international visitors among the festival respondents. Ninety-five percent of the visitors came from Indiana and Illinois with smaller proportions from several other states.

Seventy-five percent of the festival visitors stayed 24 hours at the park. On this visit, the most common activity was attending the festival (94%). On past visits, visitors' activities included walking on beaches, walking on hiking trails, and walking or jogging for exercise.

Almost three-fourths (72%) of festival visitors learned about Indiana Dunes from previous visits. Some also used newspapers or magazines (53%) and friends or relatives (43%).

The Duneland Harvest Festival was the most often listed reason (90%) for visiting Indiana Dunes, followed by enjoying nature (59%).

The most used facilities were parking lots and festival performances. Trails received the best quality rating. The most used services were directional and informational signs and festival staff. The best quality services were festival staff and the park map.

General Visitors. Sixty percent of general visitors were in family groups. Over one fourth (26%) of all general visitors were ages 31-45. Nineteen percent were 15 years old or younger. Over half (58%) were repeat visitors to Indiana Dunes.

International visitors constituted 5%. Seventy-nine percent came from Indiana and Illinois, with smaller proportions from other states.

Most general visitors (54%) stayed 12 hours at Indiana Dunes. Most visitors (73%) came to the park to enjoy nature. Common activities included walking or jogging for exercise and walking on the beach. On past visits, visitors also walked trails and walked on beaches.

Most visitors learned about the park from previous visits (67%) and friends or relatives (35%).

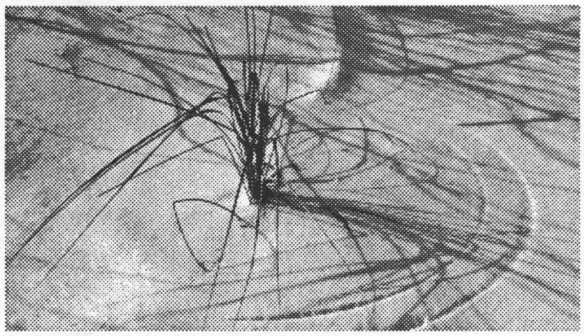
The most used facilities were restrooms and trails. The best quality facilities were picnic areas. The most used services were directional and informational signs. The best quality services were park brochures and uniformed park staff.

Summary. All surveys showed a high rate of return visits, and a predominance of visitation from Illinois and Indiana. Interpretation and education will affect subsequent visits, since many visitors attending programs and using media will visit the park again. Outreach and media-based publicity can contact many people before they visit the park.

Visitors value a variety of park experiences. Overall, most visitors come to the park to use the beach and lake, hike on trails, enjoy nature, and attend programs and special events. Eight activities were enjoyed in past visits by more than 40% of 1993 respondents; nine scored more than 40% among 1994 general visitors. The chief reasons for visiting in the July survey was to visit the beaches and the dunes; the reasons most frequently cited by general visitors in September were to enjoy nature and walk and hike trails.

Visitors value a variety of park experiences. Overall, most visitors come to the park to use the beach and lake, hike on trails, enjoy nature, and attend programs and special events.

The content and design of interpretive media and activities could reflect the high percentage of families and other groups. Both media and programs can encourage family or group interaction. For example, a study (Meredith 1993) found that parents mostly help their children in museums by reading text and identifying specimens. The National Park Service could suggest additional theme-related activities for parents and children (using programmed learning kits, activity booklets, computer games, and guided activities).



Recommendations

EAST UNIT GMP (SUMMARY)

The *General Management Plan* (GMP) for the East Unit will provide educational and recreational opportunities by preserving uncrowded natural settings. In these natural areas visitors can appreciate park habitats and understand the area's ecological processes and the need for resource protection. A strong effort will be made to maintain native plant and animal communities and natural ecological diversity. The Great Marsh will be restored to the fullest extent possible.

Cultural resources will continue to be preserved, interpreted, and used for national lakeshore purposes.

Visitor experience will be enhanced in several ways, including improving some portions of the Lake Michigan shoreline, designating a section of U.S. 12 as a scenic highway, building a new visitor center and information station, improving visitor orientation and resource interpretation, and expanding the Dunewood campground.

VISITOR CENTER

A new visitor center will be built at the southeast corner of U.S. Highway 12 and Indiana Highway 49. (The present visitor center is not located at a primary entry point, and the floorplan, size and access are inadequate.) Many people (especially those visiting for the first time) would stop first at the new visitor center. The center would improve visitor and interpretive services, location, and access. It would include

information and exhibit areas, a theater, bookstore, reference library (accessible to the public), and limited office space. Outdoor interpretation would include wayside exhibits, bulletin cases for orientation, and an interpretive trail.

A development concept plan for the visitor center would incorporate both facility and media design. Facility design should complement interpretive media and programs, and buildings should be adaptable to accommodate the updating of exhibits over time.

There are opportunities to use new technologies and to combine media to provide effective and enjoyable interpretation. Care should be taken to emphasize reliable and sustainable technologies that can be easily and affordably maintained and operated. The preliminary exhibit design will recommend specific media applications.

Lobby

An attended information area would be located in the lobby. There should be a direct line of sight between the information area and the entrance so that visitors can be greeted as they enter. There should be a work station behind the counter (so that work can proceed during periods of slow visitation). Brochures and other counter supplies will be stored in a room near the counter. Visitors' initial impressions should include the experiences and resources available in the park. There should be a welcoming feeling and easily available seating. The lobby should provide a gathering area large enough for at least one busload (up to 60 people) at one time. Other public activity areas should be easy to find from the lobby. There should be direct line of sight between the information area and the bookstore and to the entrances to the exhibit area and theater. The information area should be inviting. An information island in the middle of the lobby is not recommended.

Orientation Media

A variety of media and approaches should be used to orient visitors to the park and surrounding areas. These may include the park map and guide, site bulletins, trail maps, interactive video, an introductory video program, wall maps, brochures, and personal contacts. Some orientation should be available outside the center for visitors arriving when the facility is closed; these could include brochures, a park map on the wall, and a wayside exhibit.

Exhibit Area

For the convenience of visitors and to maintain proper climate control, exhibits should be mostly clustered in one area. A separate HVAC system in the exhibit area may be desirable to provide optimum protection for artifacts. Electrical service should be installed in the floor, near the bottoms of walls, and in the ceiling; this coverage will provide maximum flexibility for replacing exhibits in the future. Wall treatments such as sheetrock over ½-inch plywood would also provide greater flexibility for hanging fixtures on walls. Views and ambient lighting may be provided with windows and skylights as long as the light is filtered to remove harmful wavelengths, and sensitive artifacts are not affected; northern exposures are preferred. Ambient lighting will be minimized to protect artifacts and colors from damage and fading and to give maximum flexibility for future changes. The use of sound-absorbing materials and partitions throughout the exhibit area will reduce noise and allow better use of the area by groups.

EXHIBIT OBJECTIVES

Interpret all themes; emphasize those stories best told with exhibits

Provide access to representative and significant types of artifacts while protecting their integrity

Enhance visitors' ability to enjoy, protect, and understand park resources

Provide experiences that are interesting and accessible for audiences that include children, organized groups, visitors with disabilities, the elderly, and international visitors

Exhibits

The development concept plan for the visitor center will include a preliminary design for exhibits. The design would correspond to the following objectives and criteria.

There should be some general introduction and overview for visitors as they enter the area, and consideration should be given to orientation within the room.

Within an overall design scheme, exhibits would employ multiple approaches, learning styles, and levels of complexity. Visitors would have access to more in-depth treatments, which could be available through other media (e.g., relevant and available publications could be displayed in exhibit cases; computers may be especially useful in providing in-depth treatments). Special effort should be made to provide experiences for children and families, taking advantage of and enhancing group interaction.

Exhibits would address all interpretive themes to varying degrees. Topics will be identified in the design process. Topics such as geology, Native American history and prehistory, and conservation history have few obvious outdoor visual aids; their interpretation will be assisted by indoor media, including the exhibit area. Geology could be interpreted with media such as video with graphic simulations, interactive computers, and models. The story of Native Americans may be told mostly inside, since the few outdoor remains of their presence are sensitive archeological sites. There are few objects in the park collection; however, alternate methods such as artwork, replicas, and videos may be employed (an outdoor simulated encampment in the Bailly area may also be effective). The history of conservation is likely to rely on mostly photographs and text.

Some exhibit modules should be changeable to allow interpretation of current research and seasonal phenomena such as spring and fall migrations, resource management issues, orientation to interpretive programs, and incorporation of borrowed items and traveling exhibits.

Some seating should be available in the exhibit area.

Theater

The theater would be designed for both audiovisual programs and live presentations. It would seat about 120 people, have a sloping floor (with flat areas for wheelchairs scattered throughout), fixed seating, and a stage and would feature both spot and diffuse lighting of the stage area. Primary use would be for an introductory video program and for special interpretive

talks and audiovisual programs in the evenings and on weekends. A projection room and audiovisual storage would be needed.

Video Room

A separate room or alcove for video programs and interpretive talks or demonstrations would allow visitors to attend a variety of programs, while the theater would remain available primarily for the introductory program. This area would seat perhaps 40 people, and would not require a projection room. The need for such a facility was emphasized in the Post Occupancy Evaluation Program (NPS Denver Service Center/ Harpers Ferry Center).

Audiovisual Programs

There would be a 10-15 minute video program to introduce visitors to the park and provide an overview of interpretive themes and park significance and resources. Because of the expense involved in updating such a program, it should not attempt to describe specific programs and facilities that might change before the program can be modified or replaced. It should be emotionally evocative and should motivate viewers to directly experience the park. It should depict the park at different times of the year and areas or resources (such as the heron rookery in the spring, or underwater Lake Michigan) that are normally inaccessible. The program would be available on request throughout the day; first-time visitors would be encouraged to see it when they enter the building.

Special audiovisual programs could be commissioned for the theater. They could be shown in a separate video alcove or room, in the exhibit area, and at off-site programs. Possible topics include geology, research, Native Americans, succession, land use and conservation history of the region, resource stewardship, the Heron Rookery, and aquatic ecology. These programs could include topics that can be brought to life through animation (geology, succession) or topics that are visually interesting but often inaccessible (heron rookery, history and prehistory of Great Lakes Indians). If sound is included in the programs, directional speak-

ers, sound abatement fixtures and/or personal listening devices (headphones) are recommended.

Other programs would include many commercially produced programs that relate to park themes, and programs on special topics may be produced through partnerships.

Bookstore

A bookstore would offer publications for sale on topics relating to the park, other NPS areas, and the state park; posters, postcards, slides, and videotapes. Theme-related souvenirs and products of demonstrations would also be sold. The bookstore would be operated by a cooperating association. There should be enough space in the bookstore to allow for display of multiple copies. Storage and office space should be available near or contiguous to the bookstore. A portable cash register in or near the bookstore is recommended for busy periods; when there are fewer visitors, sales can be handled at the information area. An open line of sight to the information area could discourage shoplifting and help the information attendant answer questions. Seating is recommended to encourage browsing.

Publications

A wide variety of publications, prints, slides, and videotapes are currently available to visitors. The park map and guide and a park handbook, *The Indiana Dunes* are the primary interpretive publications; an NPS handbook will also be available. Several commercially produced publications also interpret aspects of the Indiana Dunes story. Park-produced site bulletins interpret selected topics. A calendar published by a local bank displays photographs of the dunes area along with interpretive messages.

Recommendations include continuing to develop site bulletins and to explore additional partnerships for publications. Development of educational materials such as curriculum guides and teacher and student workbooks would continue.

The Internet will be an important source for pre-visit information. Increasing numbers of visitors will have planned their trips using the park and Park Service web pages and other on-line services. This is an excellent medium for introducing interpretation and resource information.

Other Interpretive Media

Computers. The Internet will be an important source for pre-visit information. Increasing numbers of visitors will have planned their trips using the park and Park Service web pages and other on-line services. This is an excellent medium for introducing interpretation and resource information. Producing and maintaining this information will require significant training and staff time. On-line information is likely to reach more affluent and higher educated audiences.

There are many possibilities for using computers in the exhibit area. Computers have many advantages: they are interactive, increasing numbers of visitors enjoy using them, some programs can be easily updated, many relevant CD-ROM programs are available at a reasonable price, they allow visitors to choose what they want to learn, and they can offer multiple levels of complexity. However, hardware, maintenance, and customized programs can be expensive; reliability can be a problem; and many visitors are unfamiliar with computers.

Specific applications will be described in the preliminary design for visitor center media. Possible applications include:

> An interactive program to show visitors how to balance resource protection and enjoyment: the user visits areas of the park and is confronted with choices that impact both resources and enjoyment. Correct choices could earn points, awards, or progress toward some goal.
>
> An orientation program: users could find out what is available in different parts of the park in different seasons; this would also include resource information and encourage low-impact behaviors.
>
> Multiple level programs on topics such as biological diversity, ecology, natural and cultural history, prehistory, air and water quality, endangered species and habitat preservation: users would be able to delve into different areas and levels of complexity. Programs would ideally be customized to the park and region; many commercial programs or those developed for other areas would be useful as well.

Programs can be developed to correspond to different learning styles and persuasion strategies for the same topic. Effectiveness of alternate approaches can be evaluated as part of the program. The park could use this to test different communication strategies and attainment of Government Performance and Results Act (GPRA) outcomes.

Computers can provide basic interpretation and information in several languages. Although foreign visitors constituted only 4% of those sampled in the 1993 Visitor Services Study (and 28% percent of those were from Canada), international visitation is likely to increase. Almost 1 million people with a one-hour drive of the park speak Spanish as a first language; materials in other languages would improve educational effectiveness and create a sense of welcome.

Customized programs can be produced in partnership with universities, foundations, and the private sector.

Trunks and Kits. Educational materials can be packaged into kits for use in or around the visitor center, and kits can be sent to groups offsite. Activities could be related to curricula for schools and encourage family interaction. Kits could be checked out at the information desk for onsite use or mailed to groups as pre-site or post-site activities or to groups that cannot visit the park.

Kits could contain items to interpret a variety of theme-related topics relating to both natural and cultural history:

prehistoric Indian life with reproduction tools, food, and instruction for activities like grinding seeds

archeology with tools, grids for recording locations of artifacts, and questions and background information to assist interpretation (this would require a simulated archeological site in or around the visitor center)

animal adaptation with measuring tools, bones, and prepared specimens

Travelers' Information Service. The park currently offers one Travelers' Information Service program on am radio, provided by the state of Indiana, and located on Interstate 94. Another system (at West Beach) failed, and replacement would not be cost efficient. The effectiveness of the service is unknown; an evaluation of several systems should be made (perhaps in partnership with other parks, other agencies, and tourism interests).

Multipurpose Room

This room will host meetings and classes and accommodate up to 120 people (two busloads). Furnishings should be flexible to allow a variety of activities; a removable room divider is recommended. Storage for chairs, tables, and educational program supplies would be needed. School classes may meet here for the indoor portion of programs that also explore areas around the center, and the room could be a backup for outdoor programs in case of inclement weather. Parkwide staff meetings and training sessions may be held here.

Trails

Trails connecting with the present Ly-Co-Ki-We trail system would allow visitors to take hikes of varying lengths from the visitor center. A paved loop trail, providing wheelchair accessibility, would be designed to include representative habitats of the Calumet and Glenwood dune systems. Resources and stories along the trails would be interpreted with wayside exhibits and/or brochures. Guided hikes would also be offered. Specific trail development will be addressed in a development concept plan.

VISITOR CONTACT STATIONS

All visitor contact stations should be developed or rehabilitated so that they can provide interpretation and orientation while being either attended or unattended.

All visitor contact stations should be developed or rehabilitated so that they can provide interpretation and orientation while being either attended or unattended.

Bailly / Chellberg

Exhibits should be replaced, and the building interior should be redesigned to allow it to function either attended or unattended. It will continue to provide interpretation and orientation.

Bailly/Chellberg contact station

The present exhibits should be replaced. The 1995 *Collection Management Report* indicates that some artifacts are being damaged by high light levels and fluctuations in heat and humidity. New exhibits should be resilient and unaffected by ambient conditions or visitor access. Exhibits should support theme #2 (People and the Land). A variety of indoor media should provide orientation to the area. Additional media such as computers and audiovisual programs should be considered.

The building will be attended during peak visitor use periods. It should be relatively easy to convert from attended to unattended. Ample storage will be needed. Security is a concern.

Mobile cooperating association sales outlets will allow items to be displayed and sold at Chellberg Farm, Bailly Homestead, or other areas of the park (primarily for festivals and other special events).

West Beach

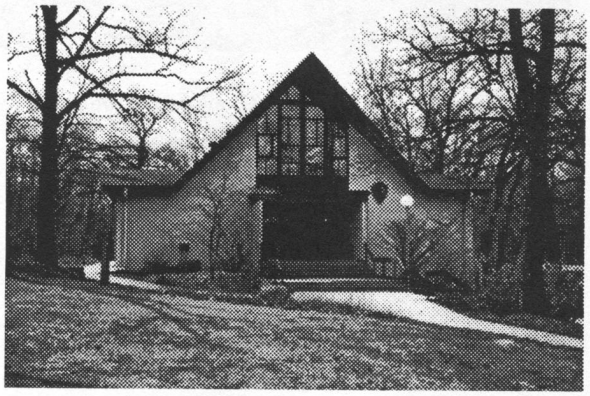
This facility is seldom used, except for the restrooms. Its chief problem may be its location, so a large investment in new interpretive media is not suggested. The existing exhibits (mostly graphics and text) are adequate.

The building interior should be redesigned to permit largely unattended use and support roving interpretation. Changes and expenditures should be minimal until visitor use of the unattended facility is understood.

Some redesign of the unattended information area at the West Beach bathhouse is needed.

Mount Baldy

A new unattended information station would be constructed on previously disturbed land at Mount Baldy. It would be easily accessible to the parking lot and trails (especially the primary trail to the beach). This facility would provide information, orientation, and interpretation through exhibits, wayside exhibits, and bulletin cases. Use of interactive computers should be considered; however, protecting them against vandalism is a concern.



Dorothy Buell Visitor Center

The facility would include a group activity room or shelter capable of accommodating 50 people. This area would be used to introduce outdoor hikes and for indoor educational activities. It would also provide a refuge to enable programs to continue during foul weather. No interpretive staff would be required at this facility (except for conducted programs). Secure storage for program supplies and equipment and orientation materials will be needed.

Interpretive media will provide orientation and information for first-time visitors and interpretation of the Mount Baldy area. Possible topics are: moving dunes, forested dunes, sand starvation and artificial beach replenishment, and historic uses of area (such as Bell Jar sand mining, early moving picture filming).

East Unit Education Center

The present Dorothy Buell Visitor Center would be converted to an environmental education center. (The Paul H. Douglas Center for Environmental Education in the west unit is too far for many schools in Michigan City and other East Unit communities to travel on field trips.)

A development concept plan will be required to guide building rehabilitation and program and media development.

EAST UNIT EDUCATION CENTER BUILDING FUNCTIONS

Support environmental and heritage education programs for schools and other groups

Provide both general and in-depth interpretation of primary interpretive themes and resource protection issues

Provide space for offices, program preparation, and storage

Enhance agency and park identity

Paul H. Douglas Center for Environmental Education

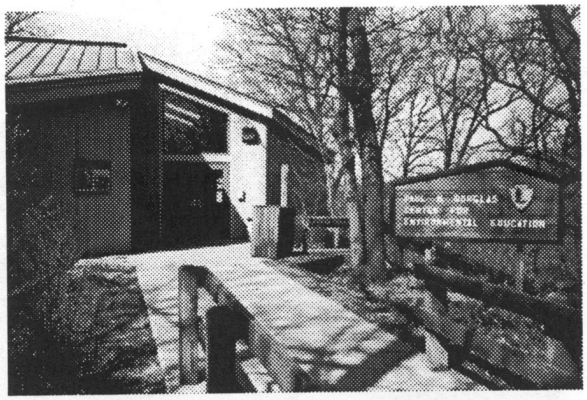
The Douglas Center was dedicated in 1985 to provide an indoor facility for environmental education programs. It is at the edge of Miller Woods, an area of wooded dunes, oak savannah, interdunal ponds, foredunes, and beach. Most programs have both indoor and outdoor components. Outdoor activities take place on trails, on short boardwalks by ponds next to the center, in a picnic area, and on a deck and a patio.

Indoor spaces include a vestibule with restrooms, lobby with an exhibit on Paul Douglas, three activity rooms (one with audiovisual capabilities), offices, and storage. Much of the center affords attractive views of nearby oak forested dunes and interdunal ponds.

Criteria for the location of the center included proximity to prime outdoor resources for environmental education. Careful planning, design, and construction were required to avoid significant impacts to those resources. The center sits on top of a dune; its modular construction allowed placement to minimize tree cutting and erosion. The parking lot was located on the other side of Lake Street, connected by a pedestrian bridge. The arrival experience allows children to experience an appealing transition to a special place, where the built environment enhances the appreciation of the natural surroundings. One youngster observed, "It's like coming to Oz."

There are law enforcement and resource protection issues associated with park facilities contiguous to urban neighborhoods. The location of the parking lot across Lake Street made surveillance of parked cars and buses difficult; problems with break-ins led to the fencing of the lot with an electronic gate. It isn't certain how the presence of the fence and gate affects the arrival experience of students. Increased community outreach and surveillance cameras may help with security problems.

A glassed-in corridor connects the vestibule and lobby with the three activity areas. Most classes are divided into groups of 15-30 students, and groups frequently rotate from one activity room to another. Vestibules outside each activity area allow groups to wait produc-



Paul H. Douglas Center for Environmental Education

The arrival experience allows children to experience an appealing transition to a special place, where the built environment enhances the appreciation of the natural surroundings. One youngster observed, "It's like coming to Oz."

Students use interactive exhibits and look at live animals in one of the activity rooms of the Douglas Center

tively for a few minutes if their scheduled area is still being used.

Interpretive media were designed to be used as program props and educational aids for group programs rather than for the public. Educational activities are based on interpretive themes and educational curricula. Packaged programs such as Projects WILD and Learning Tree are revised to meet park and school goals. Rangers also design their own programs.

The building was designed for scheduled groups, not as a public visitor center. The linear layout and lack of self-guiding interpretive media limited its value as a public visitor center. However, there was considerable neighborhood pride and interest in the center. The center was opened to the public on Sunday afternoons, but this was discontinued in 1996 due to funding limitations and sporadic participation.

A small, unfenced parking lot on the west side of Lake Street provides access to Miller Woods trails. Two wayside exhibits are proposed for this location.

The park would work with partners to update educational media by rehabilitating props that are useful and by developing new aids to support program themes.

These could include:

- interactive computer programs that interpret park resources and themes and reinforce low-impact recreational activities
- programmed activity guides for classes and families
- audiovisual products such as slides, posters, computer animations, and video and audio tapes for use in education programs
- reproduction artifacts, models, preserved specimens, and games to use in programs

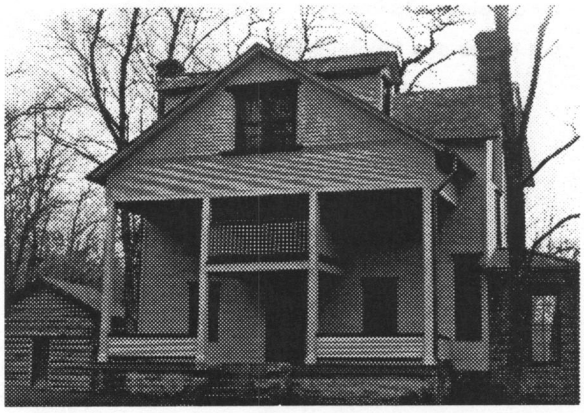
The trail system is too small to accommodate peak periods of group use. Congestion limits program effectiveness and leads to some trailside vegetation trampling. Enhancement of the trails around the center should be explored. This could include lengthening

trails, adding new trails, and adding wider areas for group activities.

Research should be conducted to determine the effects of different types of contact with live animals on students' attitudes, beliefs, and behavior. Some general research (Kellert 1983) confirms the positive influences of direct contact with live animals. Care should be taken to address health risks associated with handling live animals.

Bailly Homestead

Most site visitors tour the grounds of the Bailly Homestead on their own, reading wayside exhibits and a trail brochure that explain site history. Many stop at the contact station, which is open on weekends (May through October). Some visitors tour the site on guided tours, several of which afford entry into one or more of the five buildings. Volunteers staff the big house, fur cabin, and wigwam area on summer weekends, providing interpretation and access. Special activities include the yearly Duneland Harvest Festival at Chellberg Farm, which offers activities at Bailly Homestead. Other special events such as fur trade or Indian encampments are held infrequently. The site is a national historic landmark and is on the National Register of Historic Places.



Bailly Homestead

Many visitors are confused by the different time periods represented. While most significant activities there occurred in the 19th century, the house has been restored to its appearance in the early 20th century (the earliest date to which it could be restored accurately). Other buildings represent different time periods. The earliest restorations lack authenticity. There is some public support for restoring the interior of one or more buildings.

Interior restoration of the buildings is not recommended. There is insufficient evidence for restoration, the period of significance does not match the physical structures, and the expense would be prohibitive. Stabilization is needed on several buildings. For example, the big house interior should look well maintained, and the chapel should be repaired and protected from further damage.

Exhibits and interpretive props should be developed to interpret the interior of the big house and the Baillys.

Exhibits and interpretive props should be developed to interpret the interior of the big house and the Baillys. Photographs, illustrations, text, and historic quotes would be used. Exhibits would not be fastened to the historic structure and would not obscure important features. Furnishings and artifacts are not recommended unless they help tell important parts of the interpretive story and can be protected from variations in heat and humidity.

Further research on the Bailly story is needed. Topics could include daily activities at the homestead, the historic landscape, the role and presence of voyageurs, maple sugaring, Baillys' relationships with Native Americans, lifestyles of area Native Americans, and the political and social climate of the region. A new historic structures report should be considered.

A site bulletin or simple brochure is recommended to supplement the waysides, trail guide, and programs. Waysides would eventually be replaced to provide a consistent format throughout the park.

Interpretation of Indian life would concentrate on the fur trade period (early 19th century). Replica shelters (wigwams) could be constructed around the margins of the grounds if research documents Indian encampments around the homestead. These would become the focus for interpretive demonstrations and talks. Much of the programming would be accomplished through partnerships; high priority would be given to maintaining historic accuracy and communication skills through research, training, and program audits. Additional research on Calumet region Indians will also be a priority. Interpretation of pre-contact Indian life should be mostly conducted elsewhere to minimize confusion of time periods. Native Americans should be significantly involved in all stages of interpretation to the degree feasible.

The story of the Baillys and the fur trade era can also be told offsite with the aid of traveling trunks that would contain items associated with that era. These trunks could be used for onsite programs as well as being loaned to schools for educational programs. A fee could be charged to defray shipping and replacement costs.

Chellberg Farm

The Chellberg farm was established in 1872 and is a well-preserved Swedish-American farm that provides the setting for interpreting Baillytown, a rural Swedish-American settlement that flourished from 1850 to 1910.

Baillytown and nearby Chesterton had the largest concentration of Swedes in northwest Indiana. The 1880 census indicated that two-thirds of the foreign-born population were Swedish. The zenith of ethnic activity occurred around 1900 when Baillytown and nearby Chesterton had Swedish farms, churches, schools, and festivals.

Swedish immigration was significant to the late 19th and early 20th century development of northwest Indiana. The Chellbergs were part of this immigration pattern. The high degree of historic integrity of the turn-of-the-century farmstead illustrates Swedish immigration and settlement in the area. Visitors tour the farm on their own, on conducted tours (public and school programs), and at two seasonal festivals (Duneland Harvest in the fall and Maple Sugar Time in early spring). Rangers and volunteers frequently work onsite and are available to answer questions and provide interpretation. The barn is open daily; the house is open (first floor only) when volunteers are available. Buildings have been rehabilitated. Livestock includes chickens, pigs, horses, a cow, and a goat. Crops include corn, wheat, and sorghum. There are also vegetable and herb gardens.

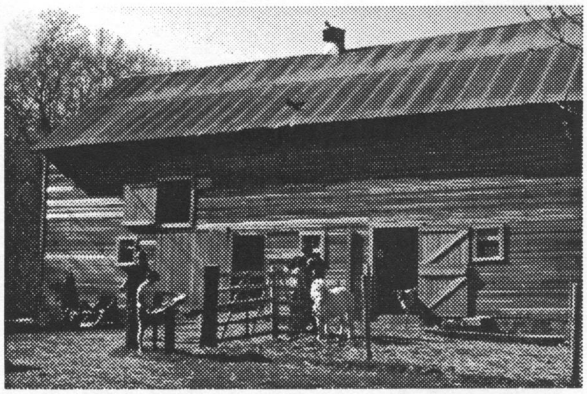
Generally, the time period interpreted is the 1880s to 1920. Farm buildings and fields resemble their turn-of-the-century appearance. Exceptions are a maple sugar house (built in the 1930s) and a modern pole barn and storage building. The pole barn is used to store mostly historic equipment, and the storage building houses more modern implements and supplies used on the farm.

There are eight wayside exhibits at the farm. They will be replaced in order to comply with a unified design scheme for park waysides. The new waysides would better conform to circulation patterns and be less obtrusive. Locations will be changed and numbers reduced.

CHELLBERG FARM

"The Chellberg Farm has been adaptively restored to the period of ownership by the Chellberg family, circa. 1900. As such the farm presents a splendid stage for environmental education services, linking the area's pioneer past with the suburban present. The primary theme at the site is human land use and its effects on the environment. In its rural, agricultural setting, the Chellberg Farm presents a sublime link between the Indian trapper era, demonstrated at the Bailly Homestead, and the present Industrial era which is evidenced in other areas in the park near power plants and steel mills. By utilizing the Chellberg Farm, itself carved from original Bailly lands, we can offer park visitors an historical perspective in the evolution of human land use in northwestern Indiana."

Chellberg Farm Management Plan, 1990



Restored barn at Chellberg Farm.

The historical integrity of the site and its buildings should be maintained. Necessary compromises would be made to accommodate visitor safety and public use.

Continue operations based on the *Chellberg Farm Management Plan*, revised 1997. The plan recommends crop management, livestock practices, building use, maintenance, and construction as well as programs.

Farm operations should be continued without modifying the site until a cultural landscape report and the historic register nomination are completed. Then any changes in crops and livestock and farming operations should be based on research from the farm census. Any changes in operation, structures or programs will be based on research and evidence.

The Swedish farming district nomination to the National Register of Historic Places should be completed by resource management personnel.

Funding for needed research must be identified and obtained.

Chellberg Interpretive Themes

The Chellberg farm is an example of the progression of human activities that took place as this northwest Indiana area was inhabited and settled. The ecosystem (geological features, weather, plants, and animals) of the area helped shape farm life.

The Chellberg's Swedish heritage influenced their lifestyle in their new home and community. Being part of the large Swedish-American community of northwest Indiana and Chicago influenced the Chellberg's acculturation. Porter County's large Swedish-American community impacted the area economically, socially, and culturally.

Interpretive Objectives

demonstrate the lifestyle and farming techniques of a Swedish-American farm family in the 1890s to 1900s in northwest Indiana demonstrate the crafts, skills, and arts typical of this period and of this rural farm community

increase visitors' understanding of the significance of Swedish immigration and acculturation to late 19th and early 20th century development

provide opportunities for visitors to relate this story of immigration and its impacts on the people and the land to the larger cultural patterns of northwest Indiana and the United States and to their own cultural heritage

Camp Good Fellow

The camp was started by the Good Fellow Club, an organization within the Gary works of the Carnegie Illinois Steel Corporation. Its purpose was to provide recreation for city children. The camp was closed during the mid-1960s and the Park Service acquired the property during the 1970s.

Congress appropriated $780,000 in FY96 for phase I design and construction (cabins, multipurpose dining hall, meeting space). Additional funding is projected for remaining phases. Operating money for the environmental center is expected in FY 1998 budget. A Cooperating Agreement with the Indiana Dunes Environmental Education Consortium will establish a means of operating the camp. In addition substantial support from nonfederal sources is anticipated to be needed.

The camp will be developed for overnight environmental education programs. It will be operated through a partnership. Consultation with schools and other groups is ongoing. In 1995 a planning team developed program goals and recommendations for the operation of the Good Fellow Camp. Its recommendations include:

The camp will be developed for overnight environmental education programs. It will be operated through a partnership, and consultation with schools and other groups is ongoing.

Facilities and campgrounds, including the lodge and the Sears house and the surrounding landscape, would be rehabilitated. Three cabins with toilet and shower facilities and a multipurpose dining hall and meeting pavilion would be constructed. The renovated lodge would be used by campers for organized activities and would also provide offices and work space for camp staff. A separate classroom building to be built near the lodge would provide additional indoor educational activity areas. Operations and programming would be accomplished through a partnership with the Indiana Dunes Environmental Education Consortium.

The camp will initially house up to 64 children and 8 teachers and chaperones; eventually this number will rise to about 200 participants. A camp manager and a program director would be hired. College interns (48) would be hired to present programs. Training, program design, and quality assurance would be provided by the camp director and by park staff.

The primary audience would be grades 4-6; developing programs for these grades will be a high priority. Secondary users would include any group interested in using the facilities for resource-related educational activities. The overall theme would be "Our Changing Landscape: the Lake Michigan Connection." All park themes could be interpreted.

The program goals are that participants will:

become aware of the southern Lake Michigan basin with an emphasis on the Indiana dunes ecosystem and its problems and discover how they can become involved in protecting it

increase their understanding of the natural history of the Lake Michigan basin; learn ecological principles and processes, and gain an understanding of specific ecosystems and the diversity found in those systems

learn the history of this area and the contribution of different cultural groups, with emphasis on settlement, transportation, industrial development, development of scientific ecology, the conservation and preservation movement, and their relationships to these topics

develop skills in scientific research, sharing knowledge and problem solving, and use these skills to inspire behavioral changes

be inspired to express themselves artistically about Indiana Dunes

have opportunities to nurture their sense of wonder through use of their senses

experience a variety of learning styles incorporated in multidisciplinary approaches, using a variety of methods, including cooperative, reflective, and discovery learning

understand their connection to the environment (discover the impact they have on their environment and the impact it has on them)

understand that Indiana Dunes National Lakeshore is part of the national park system; recognize the value that a national park has on determining the quality of life; understand the value of its existence and protection and the gifts that it brings; see their role as citizens in giving input for its direction

learn to value and respect themselves as part of the local and global communities; develop understanding of the global environment, how the park is connected to it, and how it affects their quality of life

be able to connect the program at the center with the school curriculum and with specialized activities designed for the classroom to enhance learning in both arenas

link the environment at the national lakeshore with their home and school environments

have an enjoyable, safe, and memorable experience.

Outdoor Interpretive Media

Outdoor interpretive media include wayside exhibits, bulletin cases, message repeaters, computer terminals, and brochures.

Wayside Exhibits

Wayside exhibits can be an effective way to interpret each of the park's interpretive themes. Parkwide placement of wayside exhibits can enhance the visitor's understanding of the park themes onsite. Wayside exhibits are also useful to establish identity, especially in this park, since it is composed of several noncontiguous units.

Obsolete or damaged wayside exhibits would be removed and replaced with new exhibits. Waysides include park orientation and information exhibits, resource interpretation exhibits, trailhead exhibits, and bulletin boards for seasonal or changing information. All exhibits will include the park's identification.

A wayside exhibit plan has been drafted by the park and Harpers Ferry Center. Ten park orientation panels (to be fabricated in fiberglass) will be produced; eight orientation panels also have bulletin cases. The rest are either trailhead or site-specific interpretive panels (to be fabricated in porcelain enamel).

Wayside exhibit planning will be phased to reflect current and future needs.

Bulletin Cases

Bulletin cases allow information to be posted and easily updated. They received moderately good ratings in both importance and quality in both VSP studies. Interpretation and orientation materials are produced, arranged, and maintained by park staff. Perceived quality and usefulness of bulletin cases may relate to many variables, including:

Appearance — They should be of a pleasing and appropriate design and well maintained (with graffiti removed and damage repaired). Topics should be announced in headlines that can be read from a moderate distance.

Access — They should be located where people begin activities such as hiking, swimming, sun bathing, or touring a historic site. They should be easily reached by the elderly or people with disabil-

ities, and the most significant messages should be easy to read and readily understood by an upper elementary school student.

Composition — Materials should be arranged according to understandable and well labeled topic areas, using simple design schemes that facilitate easy viewing and comprehension.

Interest — Topics should interest visitors; text should be sparse and use active language; quality photographs and illustrations should supplement text.

Brochures

Brochures include the park map and guide, four trail brochures, and several site bulletins. The map and guide is a high quality product that visitors rate as being extremely important. It could be updated in a few years, but no other changes are suggested. All four trail brochures are well written and designed and are rated as good to very good in quality and high in importance by most visitors. Information can be updated and wording or illustrations can be improved when they are reprinted. New brochures would be produced for Chellberg Farm and Bailly Homestead.

Site bulletins (using the standard unigrid format) will be produced by park staff on various topics.

Interpretive Collection

An accession committee will be set up to determine objects that should be acquired for the museum collection or for the interpretive collection. The park's scope of collection statement will be modified to discuss the interpretive collection and the use of museum objects for demonstration purposes.

Research

To help prepare and update site-specific planning documents and to further support interpretive themes and objectives, more in-depth research should be conducted

on the following cultural resource topics: the world's fair houses, the area's pre- and post-contact Native Americans, Swedish immigration and its impact on northwest Indiana, the early conservation movement that led to the establishment of the state park and national lakeshore, the area's transportation routes that evolved over time, and the role and impact of artists, writers, and recreationists on the dunes. Staff and volunteers need training on the above topics so that they can incorporate this information into programs, publications, and exhibits. Funding for a permanent full-time or part-time historian or the services of a contract historian is needed.

Partnerships

While there are some partners currently assisting in the development, presentation, or evaluation of interpretive programming, there is a need for additional partnerships to assist in providing programming and services.

While there are some partners currently assisting in the development, presentation, or evaluation of interpretive programming, there is a need for additional partnerships to assist in providing programming and services. Current partners include Indiana University, Duneland School District, and Gary School District. They evaluate the effectiveness of education programs. Friends of Indiana Dunes present major festivals and "Duneland Dimensions" programming and assist in fund raising for the Good Fellow Camp. Eastern National Park and Monument Association runs the park's bookstores and prints activity schedules. Save the Dunes Conservation Fund developed the park outreach program. The Student Conservation Association provides students who present programming and assist with visitor services.

Future partnerships will be needed to assist in the development and operation of the Good Fellow Environmental Education Camp and its programs; to expand the amount and type of programming and visitor services that can be provided by the NPS staff, to develop computer programs and educational activity guides, and to research and present programs on Native Americans of the area.

Personal Services

Personal services include guided walks, interpretive talks and demonstrations, education programs, infor-

mal contacts (roving, information desk), and workshops and other conducted activities. They tend to rate high in visitor enjoyment and value, ability to communicate complex ideas, and flexibility. Personal services tend to be more expensive than other media, and the demand often exceeds the supply of personnel and funding. Visitors seeking recreational experiences may not attend more substantive resource-based programs.

Interpretive programs are offered year round.

Personal services meet visitor experience goals and follow interpretive themes. Issues of program design are covered in other documents and training programs. Setting priorities is the major remaining issue for personal services — responding to requests for interpretive services while giving sufficient attention to training, program development, research, and other duties. Demand for environmental education programs has exceeded the park's ability to provide them since they were first offered in the early 1970s. The park sets priorities, revises scheduling periodically to become more efficient, trains teachers and volunteers, writes lesson plans, and develops partnerships, but there are still more requests than staff available to fill them.

Demand for environmental education programs has exceeded the park's ability to provide them since they were first offered in the early 1970s.

Priorities

Setting priorities requires some estimation of the effects or results of programs and other activities. The completion of the Indiana University study and implementation of the Government Performance and Results Act will focus attention on program outcomes (effects on visitors and resources). Parks will develop methodologies for ascertaining outcomes.

Ideally, evaluation of program results would be an ongoing process at several levels. Evaluations cost time and money, and their value must be weighed against the costs. Evaluations can guide the park in judging the best mixture of program preparation, program delivery, and outreach.

Ideally, evaluation of program results would be an ongoing process at several levels. Evaluations cost time and money, and their value must be weighed against the costs. Evaluations can guide the park in judging the best mixture of program preparation, program delivery, and outreach.

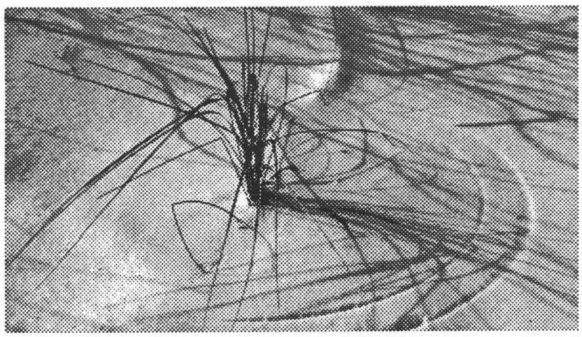
One park study evaluated environmental education program outcomes (Passineau and Roggenbuck 1984); it confirmed significant changes in knowledge, and suggested positive effects on attitudes and behavior. Another study (Indiana University, Knapp) is in progress. Extrapolation from other studies can also

provide useful information. For example, education programs with upper elementary grades seem to provide long-range improvements in resource stewardship and reductions in damaging behaviors (Vande Camp 1994).

In general, priority should be given to activities that:

- address central interpretive themes, goals, and resource protection issues
- enhance access to important resources and visitor experiences
- are designed to have significant impact on resource-related knowledge, attitudes, and behavior
- help meet management objectives
- improve access for people with little previous experience in national parks or those with disabilities
- provide services that are valued by the public
- provide services that are not adequately provided by others

Some programs may be offered on a fee basis. Generally, these would be programs that are more in-depth or relate to more peripheral themes, yet are in demand. An in-depth program might be a seminar on beetle ecology or archeology; a program on a peripheral theme might be a lecture and tour of the world's fair houses. In 1995, the park began charging for offsite programs.



Appendix: Special Populations: Programmatic Accessibility Guidelines for Interpretive Media

National Park Service
Harpers Ferry Center
June 1996

Prepared by
Harpers Ferry Center
Accessibility Task Force

Contents
Statement of Purpose
Audiovisual Programs
Exhibits
Historic Furnishings
Publications Wayside Exhibits

STATEMENT OF PURPOSE

This document is a guide for promoting full access to interpretive media to ensure that people with physical and mental disabilities have access to the same information necessary for safe and meaningful visits to National Parks. Just as the needs and abilities of individuals cannot be reduced to simple statements, it is impossible to construct guidelines for interpretive media that can apply to every situation in the National Park System.

These guidelines define a high level of programmatic access which can be met in most situations. They articulate key areas of concern and note generally accepted solutions. Due to the diversity of park resources and the variety of interpretive situations, flexibility and versatility are important.

Each interpretive medium contributes to the total park program. All media have inherent strengths and weaknesses, and it is our intent to capitalize on their strengths and provide alternatives where they are deficient. It should also be understood that any interpretive medium is just one component of the overall park experience. in some instances, especially with regard to learning disabilities, personal services, that is one-on-one interaction, may be the most appropriate and versatile interpretive approach.

In the final analysis, interpretive design is subjective, and dependent on both aesthetic considerations as well a the particular characteristics and resources available for a specific program. Success or failure should be evaluated by examining all interpretive offerings of a park. Due to the unique characteristics of each situation, parks should be evaluated on a case by case basis. Nonetheless, the goal is to fully comply with NPS policy:

> *"...To provide the highest level of accessibility possible and feasible for persons with visual, hearing, mobility, and mental impairments, consistent with the obligation to conserve park resources and preserve the quality of the park experience for everyone."*
>
> *— NPS Special Directive 83-3, Accessibility for Disabled Persons*

AUDIOVISUAL PROGRAMS

Audiovisual programs include motion pictures, sound/slide programs, video programs, and oral history programs. As a matter of policy, all audiovisual programs produced by the Harpers Ferry Center will include some method of captioning. The Approach used will vary according to the conditions of the installation area and the media format used, and will be selected in consultation with the parks and regions.

The captioning method will be identified as early as possible in the planning process and will be presented in an integrated setting where possible. To the extent possible, visitors will be offered a choice in viewing captioned or uncaptioned versions, but in situations where a choice is not possible or feasible, a captioned version of all programs will be made available. Park management will decide on the most appropriate operational approach for the particular site.

Guidelines Affecting Mobility Impaired Visitors

1. The theater, auditorium, or viewing area should be accessible and free of architectural barriers, or alternative accommodations will be provided. UFAS 4.1.

2. Wheelchair locations will be provided according to ratios outlined in UFAS 4.1.2(18a).

3. Viewing heights and angles will be favorable for those in designated wheelchair locations.

4. In designing video or interactive components, control mechanisms will be placed in accessible location, usually between 9" and 48" from the ground and no more than 24" deep.

Guidelines Affecting Visually Impaired Visitors

1. Simultaneous audio description will be considered for installations where the equipment can be properly installed and maintained.

Guidelines Affecting Hearing Impaired Visitors

1. All audiovisual programs will be produced with appropriate captions.

2. Copies of scripts will be provided to the parks as a standard procedure.

3. Audio amplification and listening systems will be provided in accordance with UFAS 4.1.2(18b).

Guidelines Affecting Learning Impaired Visitors

1. Unnecessarily complex and confusing concepts will be avoided.

2. Graphic elements will be chosen to communicate without reliance on the verbal component.

3. Narration will be concise and free of unnecessary jargon and technical information.

EXHIBITS

Numerous factors affect the design of exhibits, reflecting the unique circumstances of the specific space and the nature of the materials to be interpreted. It is clear that thoughtful, sensitive design can go a long way in producing exhibits that can be enjoyed by a broad range of people. Yet, due to the diversity of situations encountered, it is impossible to articulate guidelines that can be applied universally.

In some situations, the exhibit designer has little or no control over the space. Often exhibits are placed in areas ill suited for that purpose, they may incorporate large or unyielding specimens, may incorporate sensitive artifacts which require special environmental controls, and room decor or architectural features may dictate certain solutions. All in all, exhibit design is an art which defies simple description.

However, one central concern is to communicate the message to the largest audience possible. Every reasonable effort will be made to eliminate any factors limit-

ing communication through physical modification or by providing an alternate means of communication.

Guidelines Affecting Mobility Impaired Visitors

1. Exhibit space will be free of physical barriers or a method of alternate accommodation shall be provided.

2. All pathways, aisles, and clearances will meet standards set forth in UFAS 4.3. Generally a minimum width of 36" will be provided.

3. Ramps will be as gradual as possible and will not exceed a slope of 1" rise in 12" run, and otherwise conform with UFAS 4.8.

4. Important artifacts, labels, and graphics, will be placed at a comfortable viewing level relative to their size. Important text will be viewable to all visitors. Display cases will allow short or seated people to view the contents and the labels. Video monitors associated with exhibits will be positioned to be comfortably viewed by all visitors.

5. Lighting will be designed to reduce glare or reflections, especially when viewed from a wheelchair.

6. Ground and floor surfaces near the exhibit area will be stable, level, firm, and slip-resistant. (UFAS 4.5).

7. Operating controls or objects to be handled by visitors will be located in an area between 9" and 48" from the ground and no more than 24" deep. (UFAS 4.3)

8. Horizontal exhibits (e.g. terrain model) will be located at a comfortable viewing height.

9. Information desks and sales counters will be designed for use by visitors and employees using wheelchairs, and will include a section with a desk height no greater than 32 to 34 inches, with at least a 30 inch clearance underneath. The width should be a minimum of 32 inches vertical, with additional space provided for cash registers or other equipment, as applicable.

10. Accessibility information about the specific park should be available at the information desk and the international symbol of access will be displayed where access information is disseminated.

11. Railings and barriers will be positioned in such a way as to provide unobstructed viewing by persons in wheelchairs.

Guidelines Affecting Visually Impaired Visitors

1. Exhibit typography will be selected with readability and legibility in mind.

2. Characters and symbols shall contrast with their backgrounds, either light characters on a dark background or dark characters on a light background. (UFAS 4.30.3)

3. Tactile and participatory elements will be included where possible.

4. Audio description will be provided where applicable.

5. Signage will be provided to indicate accessible rest rooms, telephones, and rest rooms elevators. (UFAS 4.30)

Guidelines Affecting Hearing Impaired Visitors

1. Information presented via audio formats will be duplicated in a visual medium, either in the exhibit copy or by printed material.

2. Amplification systems and volume controls will be incorporated to make programs accessible to the hard of hearing.

3. Written text of all audio narrations will be provided.

4. All narrated AV programs will be captioned.

5. Allowance for Telecommunication Devices for the Deaf (TDD) will be included into information desk designs.

Guidelines Affecting Learning Impaired Visitors

1. Exhibits will avoid unnecessarily complex and confusing topics.
2. Graphic elements will be developed to communicate non-verbally.
3. Unfamiliar expressions and technical terms will be avoided and pronunciation aids will be provided where appropriate.
4. To the extent possible, information will be provided in a manner suitable to a diversity of abilities and interests.
5. Where possible, exhibits will be multi-sensory. Techniques to maximize the number of senses utilized in an exhibit will be encouraged.
6. Exhibit design will be cognizant of directional handicaps and will utilize color and other creative approaches to facilitate comprehension of maps.

HISTORIC FURNISHINGS

Historically refurnished rooms offer the public a unique interpretive experience by placing visitors within historic spaces. Surrounded by historic artifacts visitors can feel the spaces "come alive" and relate more directly to the historic events or personalities commemorated by the park.

Accessibility is problematical in many NPS furnished sites because of the very nature of historic architecture. Buildings were erected with a functional point of view that is many times at odds with our modern views of accessibility.

The approach used to convey the experience of historically furnished spaces will vary from site to site. The goals, however, will remain the same, to give the public as rich an interpretive experience as possible given the nature of the structure.

Guidelines Affecting Mobility Impaired Visitors

1. The exhibit space should be free of architectural barriers or a method of alternate accommodation should be provided, such as slide programs, videotaped tours, visual aids, dioramas, etc.

2. All pathways, aisles, and clearances shall (when possible) meet standards set forth in UFAS 4.3 to provide adequate clearance for wheelchair routes.

3. Ramps shall be as gradual as possible and not exceed a 1" rise in 12" run, and conform with UFAS 4.8.

4. Railings and room barriers will be constructed in such a way as to provide unobstructed viewing by persons in wheelchairs.

5. In the planning and design process, furnishing inaccessible areas, such as upper floors of historic buildings, will be discouraged unless essential for interpretation.

6. Lighting will be designed to reduce glare or reflections when viewed from a wheelchair.

7. Alternative methods of interpretation, such as audiovisual programs, audio description, photo albums, and personal services will be used in areas which present difficulty for the physically impaired.

Guidelines Affecting Visually Impaired Visitors

1. Exhibit typefaces will be selected for readability and legibility, and conform with good industry practice.

2. Audio description will be used to describe furnished rooms, where appropriate.

3. Windows will be treated with film to provide balanced light levels and minimize glare.

4. Where appropriate, visitor-controlled rheostat-type lighting will be provided to augment general room lighting.

5. Where appropriate and when proper clearance has been approved, surplus artifacts or reproductions will be utilized as "hands-on" tactile interpretive devices.

Guidelines Affecting Hearing Impaired Visitors

1. Information about room interiors will be presented in a visual medium such as exhibit copy, text, pamphlets, etc.

2. Captions will be provided for all AV programs relating to historic furnishings.

Guidelines Affecting the Learning Impaired

1. Where appropriate, hands-on participatory elements geared to the level of visitor capabilities will be used.

2. Living history activities and demonstrations which utilize the physical space as a method of providing multi-sensory experiences will be encouraged.

PUBLICATIONS

A variety of publications are offered to visitors, ranging from park folders which provide an overview and orientation to a park to more comprehensive handbooks. Each park folder should give a brief description of services available to the disabled, list significant barriers, and note the existence of TDD phone numbers, if available.

In addition, informal site bulletins are often produced to provide more specialized information about a specific site or topic. It is recommended that each park produce an easily updatable "Accessibility Site Bulletin" which could include detailed information about the specific programs, services, and opportunities available for the disabled and to describe barriers which are pre-

sent in the park. These bulletins should be in reasonably large type, 18 points or larger.

Guidelines Affecting Mobility Impaired Visitors

1. Park folders, site bulletins, and sales literature will be distributed from accessible locations and heights.

2. Park folders and Accessibility Site Bulletins should endeavor to carry information on the accessibility of buildings, trails, and programs by the disabled.

Guidelines Affecting Visually Impaired Visitors

1. Publications will be designed with the largest type size appropriate for the format.

2. Special publications designed for use by the visually impaired should be printed in 18 point type.

3. The information contained in the park folder should also be available on audio cassette. Handbooks, accessibility guides, and other publications should be similarly recorded where possible.

Guidelines Affecting Hearing Impaired Visitors

1. Park site bulletins will note the availability of such special services as sign language interpretation and captioned programs.

Guidelines Affecting Learning Impaired Visitors

1. The park site bulletin should list any special services available to this group.

WAYSIDE EXHIBITS

Wayside exhibits, which include outdoor interpretive exhibits and signs, orientation shelter exhibits, trailhead exhibits, and bulletin boards, offer special advantages to disabled visitors. The liberal use of pho-

tographs, artwork, diagrams, and maps, combined with highly readable type, make wayside exhibits an excellent medium for visitors with hearing and learning impairments. For visitors with sight impairments, waysides offer large type and high legibility.

Although a limited number of NPS wayside exhibits will always be inaccessible to visitors with mobility impairments, the great majority are placed at accessible pullouts, viewpoints, parking areas, and trailheads.

The NPS accessibility guidelines for wayside exhibits help insure a standard of quality that will be appreciated by all visitors. Nearly everyone benefits from high quality graphics, readable type, comfortable base designs, accessible locations, hard-surfaced exhibit pads, and well-landscaped exhibit sites.

While waysides are valuable on-site "interpreters," it should be remembered that the park resources themselves are the primary things visitors come to experience. Good waysides focus attention on the features they interpret, and not on themselves. A wayside exhibit is only one of the many interpretive tools which visitors can use to enhance their appreciation of a park.

Guidelines Affecting Mobility Impaired Visitors

1. Wayside exhibits will be installed at accessible locations whenever possible.

2. Wayside exhibits will be installed at heights and angles favorable for viewing by most visitors including those in wheelchairs. For standard NPS low-profile units the recommended height is 30 inches from the bottom edge of the exhibit panel to the finished grade; for vertical exhibits the height of 6-28 inches.

3. Trailhead exhibits will include an accessibility advisory.

4. Wayside exhibits sites will have level, hard surfaced exhibit pads.

5. Exhibit sites will offer clear, unrestricted views of park features described in exhibits.

Guidelines Affecting Visually Impaired Visitors

1. Exhibit type will be as legible and readable as possible.

2. Panel colors will be selected to reduce eye strain and glare, and to provide excellent readability under field conditions. White should not be used as a background color.

3. Selected wayside exhibits may incorporate audio stations or tactile elements such as models, texture blocks, and relief maps.

4. For all major features interpreted by wayside exhibits, the park should offer non-visual interpretation covering the same subject matter. Examples include cassette tape tours, radio messages, and ranger talks.

5. Appropriate tactile cues should be provided to help visually impaired visitors locate exhibits.

Guidelines Affecting Hearing Impaired Visitors

1. Wayside exhibits will communicate visually, and will rely heavily on graphics to interpret park resources.

2. Essential information included in audio station messages will be duplicated in written form, either as part of the exhibit text or with printed material.

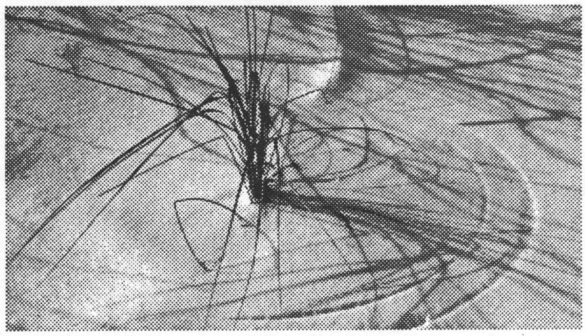
Guidelines Affecting Learning Impaired Visitors

1. Topics for wayside exhibits will be specific and of general interest. Unnecessary complexity will be avoided.

2. Whenever possible, easy to understand graphics will be used to convey ideas, rather than text alone.

3. Unfamiliar expressions, technical terms, and jargon will be avoided. Pronunciation aids and definitions will be provided where needed.

4. Text will be concise and free of long paragraphs and wordy language.



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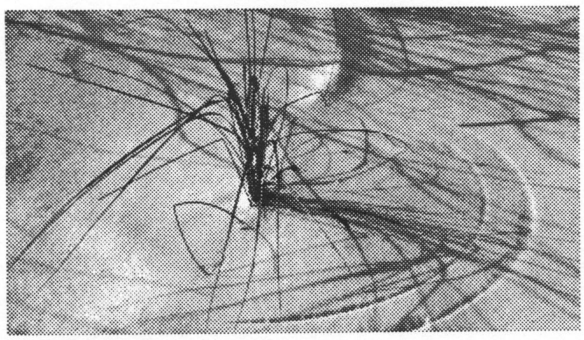

Planning Team and Consultants

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MIDWEST REGION, GREAT LAKES SUPPORT OFFICE

Warren Bielenberg, Team Leader, Education and Visitor Services

PUBLICATION SERVICES

Joan Huff, Visual Information Technician, Denver Service Center

LAKE MICHIGAN

INDIANA DUNES NATIONAL LAKESHORE

INDIANA DUNES STATE PARK

West Beach

Porter Beach

Kemil Beach

Lake View

Central Beach

Mt. Baldy

NIPSCO

MICHIGAN CITY

BEVERLY SHORES

TOWN OF PINES

Dunewood Campground

Dorothy Buell Memorial Visitor Center

DUNE ACRES

Park Headquarters

Chellberg Farm

Good Fellow Camp

Bailly Homestead

Bailly-Chellberg Visitor Center

Heron Rookery

Pinhook Bog

OGDEN DUNES

Midwest Steel

Port of Indiana

No. Indiana Public Service Co. (NIPSCO)

Bethlehem Steel

BURNS HARBOR

CHESTERTON

U.S. Steel

Grand Calumet River

Little Calumet River

Paul H. Douglas Center for Environmental Education

To Chicago

GARY

Calumet Prairie

Little Calumet River

Deep River

To Hoosier Prairie

PORTAGE

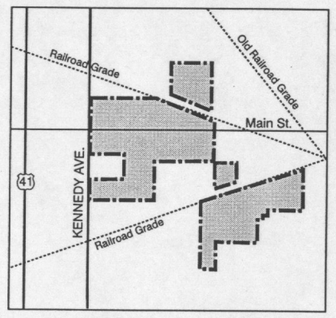
Salt Creek

To Valparaiso

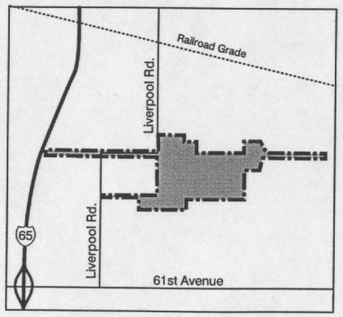
To Kalamazoo

Trail Creek

To South Bend



HOOSIER PRAIRIE



HOBART PRAIRIE GROVE

INDIANA DUNES NATIONAL LAKESHORE

STATE PARK OR NATURE PRESERVE

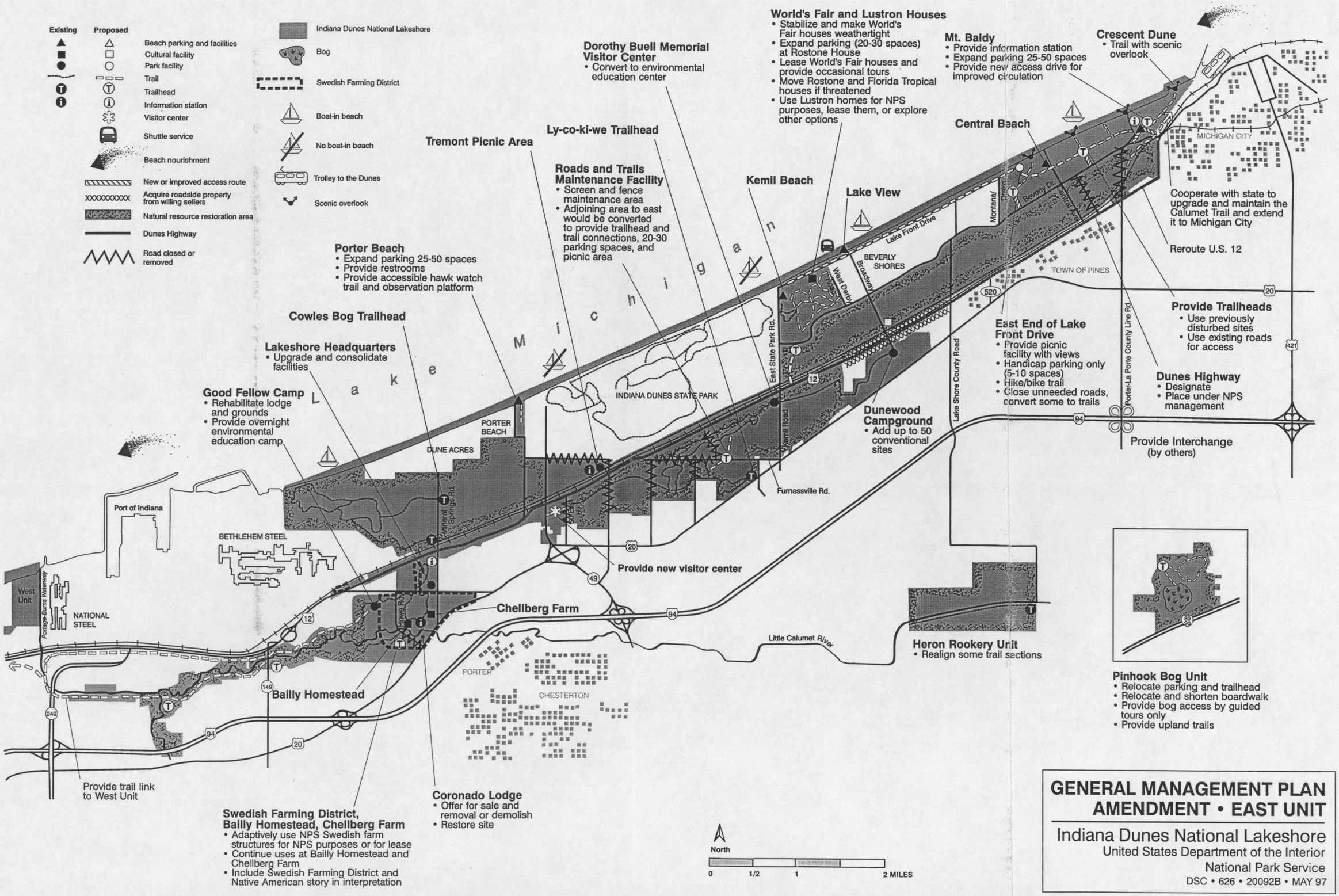
North

0 2 4 MILES

LOCATION

Indiana Dunes National Lakeshore

United States Department of the Interior
National Park Service
DSC • 626 • 20098 • SEP 96



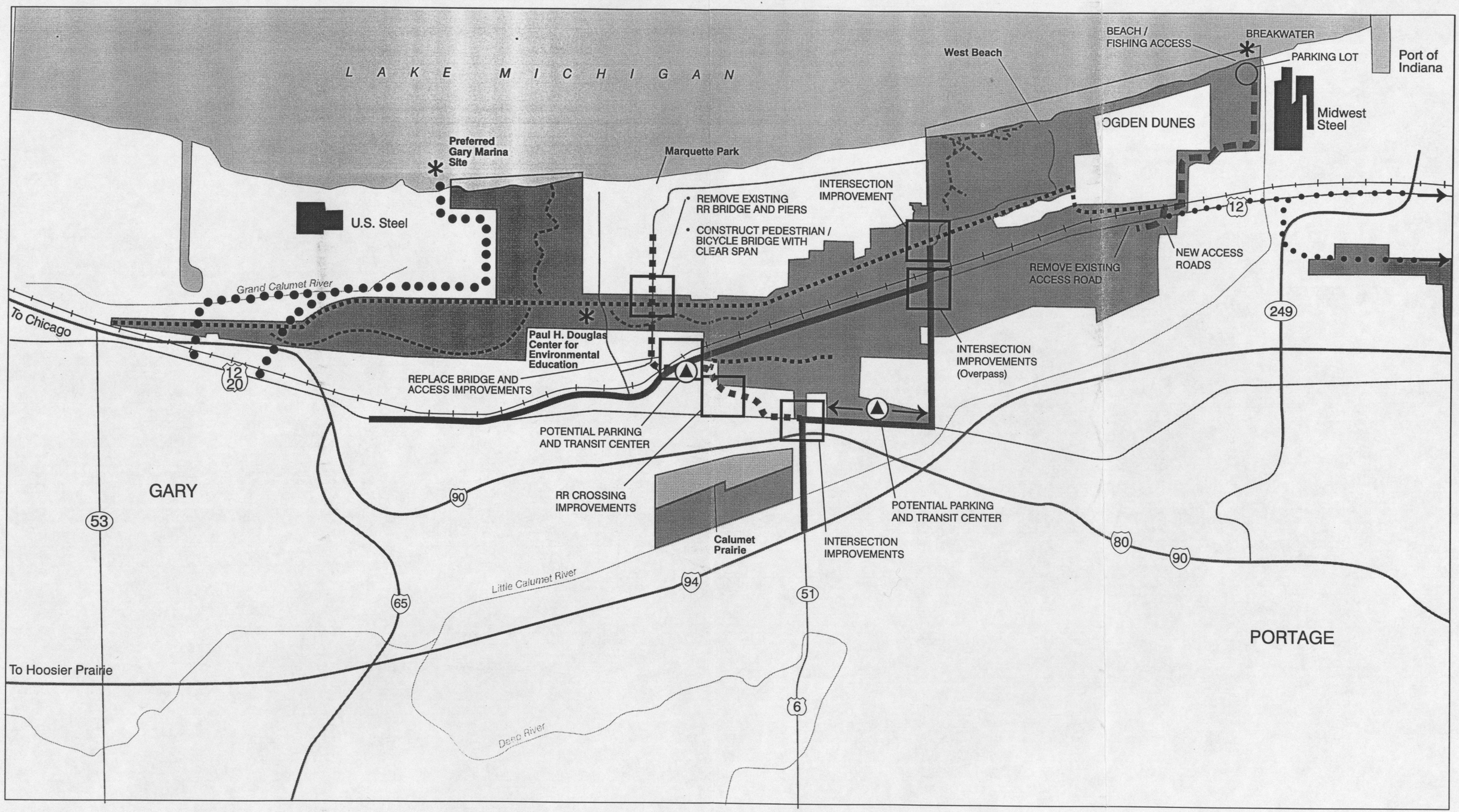
GENERAL MANAGEMENT PLAN AMENDMENT • EAST UNIT

Indiana Dunes National Lakeshore

United States Department of the Interior

National Park Service

DSC • 626 • 20092B • MAY 97



WEST BEACH ACCESS ROUTE

MARQUETTE PARK ACCESS ROUTES

MARINA ACCESS ROUTES

HIKING TRAIL

HIKE / BIKE TRAIL

ROAD WITH HIKE / BIKE TRAIL

PROPOSED LITTLE CALUMET HIKE / BIKE RIVER CORRIDOR CONNECTION TRAIL

INDIANA DUNES NATIONAL LAKESHORE

STATE PARK OR NATURE PRESERVE

North

0 1/2 1 Mile

WEST UNIT ACCESS GENERAL DEVELOPMENT

Indiana Dunes National Lakeshore
United States Department of the Interior
National Park Service
DSC • 626 • 20079E • 8/97

LAKE MICHIGAN

IN 149 RIVER ACCESS
- Fishing Access
- Restrooms
- Parking
- Trailhead

BOO ROAD RIVER ACCESS
- Parking
- Fishing Access
- Restrooms
- Trailhead

BURNS DITCH RIVER ACCESS
- Parking
- Fishing Access
- Restrooms
- Hike / Bike Route Access
- Trailhead

HOWE ROAD RIVER ACCESS
- Parking
- Fishing Access
- Restrooms
- Trailhead

Mt. Baldy
Central Beach
Lake View
Kemil Beach
BEVERLY SHORES
TOWN OF PINES
NIPSCO
MICHIGAN CITY
Trail Creek
To Kalamazoo
Dunewood Campground
Porter Beach
INDIANA DUNES STATE PARK
Dorothy Buell Memorial Visitor Center
DUNE ACRES
PORTAGE / BURNS WATERWAY
West Beach
Little Calumet Marina
Trail connection to West Beach
Inland Marsh trail connection
Marquette Park
No. Indiana Public Service Co. (NIPSCO)
Port of Indiana
Bethlehem Steel
Warm-water discharge
Midwest Steel
OGDEN DUNES
Park Headquarters
Chellberg Farm
Good Fellow Camp
Bailly Homestead
BURNS HARBOR
Bailly-Chellberg Visitor Center
Hawthorne Park
Little Calumet River
Heron Rookery
Pinhook Bog
To South Bend
WATER QUALITY, FLOODPLAIN, AND WETLAND PROTECTION AREA
CHESTERTON
U.S. Steel
Grand Calumet River
To Chicago
Paul H. Douglas Center for Environmental Education
Burns Ditch
GARY
Woodland Park
Imagination Glen Park
ABANDONED RAIL RIGHT-OF-WAY / TRAIL LINK
Proposed Little Calumet River Basin Development Commission Recreation Area
Calumet Prairie
Little Calumet River
Four Winds Park
Deep River
To Hoosier Prairie
Riverview Park
PORTAGE
Salt Creek
To Valparaiso

EAST END BIKE ROUTE

EAST BRANCH LITTLE CALUMET RIVER HIKING TRAIL

EAST-WEST CONNECTION ROUTE

U.S. 12 HIKE / BIKE PATH

POTENTIAL TRAIL CONNECTIONS TO OTHER REGIONAL RECREATION FACILITIES (not developed by the Park Service)

INDIANA DUNES NATIONAL LAKESHORE

STATE PARK OR NATURE PRESERVE

OPEN SPACE / PARK

RIVER ACCESS

ABANDONED RAILROAD RIGHT-OF-WAY

North

0 2 4 MILES

GENERAL DEVELOPMENT

LITTLE CALUMET RIVER CORRIDOR

Indiana Dunes National Lakeshore

United States Department of the Interior
National Park Service
DSC • 626 • 40098C • 8/97