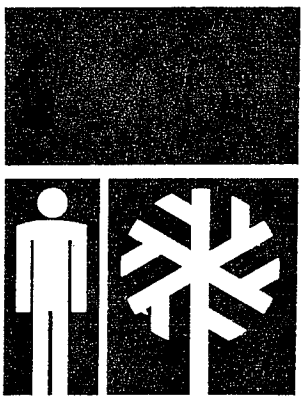
comprehensive plan for management and use

september 1983

ICE AGE



NATIONAL SCENIC TRAIL / WISCONSIN

ICE AGE
NATIONAL SCENIC TRAIL

ICE AGE NATIONAL SCENIC TRAIL

COMPREHENSIVE PLAN

FOR

MANAGEMENT AND USE

United States Department of the Interior

National Park Service

September 1983

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I. INTRODUCTION

A. Legal Authority

In October 1968, the Congress passed the National Trails System Act (82 Stat. 919, 16 U.S.C. 1241) establishing a framework for developing a nationwide system of scenic, recreational, and historic trails. The Ice Age National Scenic Trail (NST) in Wisconsin was designated and added to the National Trails System by the Act of October 3, 1980, 94 Stat. 1360, 16 U.S.C. 1244(a)(10)--see Appendix A. When completed, the authorized trail will meander approximately 1,000 miles across Wisconsin following a chain of glacial landscape features. The Ice Age Trail joined four other National Scenic Trails--the Appalachian, Pacific Crest, Continental Divide, and North Country--which had previously been designated as components of the National Trails System. Three additional National Scenic Trails--the Potomac Heritage, Natchez Trace, and Florida--were recently designated by the National Trails System Act Amendments of 1983 (97 Stat. 42). Section 5(e) of the National Trails System Act requires preparation of this Comprehensive Plan for Management and Use of the Ice Age NST.

B. Purpose of This Plan

As originally passed in 1968, the National Trails System Act contained the authorities for pursuing a rather traditional Federal acquisition, development, and management approach to national trails, but subsequent amendments have mandated that trails in the national system be established and managed through the cooperative efforts of Federal, State, and local governments and private trail interests. Direct Federal involvement and management of the Ice Age NST is restricted to those portions of the route which lie within existing Federal areas. Therefore, the responsibility of the National Park Service to ensure the development and protection of the Ice Age NST will be carried out by orchestrating the efforts of many agencies at all levels of Government and various private sector interests. This responsibility will be performed in close consultation and coordination with the Wisconsin Department of Natural Resources, the Ice Age Trail Council, and the Ice Age Park and Trail Foundation. The prominent role of these three organizations in the management of the Ice Age NST is discussed in Section V.

It is the purpose of this plan to provide guidance on routing, developing, and managing the trail to cooperating public agencies and private trail interests and to provide Congress the information it needs to carry out its oversight responsibility for the Ice Age NST. This plan is intended to provide only a framework for the development and management of the trail and its immediate environs. Most of the decisions regarding the specific route, development standards, permitted uses, and management policies are delegated by design to the managing authority responsible for a particular segment of the trail (see Section V.A).

Because of the nature of the trail as discussed in Section II, this document identifies existing trail segments which qualify for immediate certification as part of the Ice Age NST, potential trail segments which when established will qualify for certification, and also side trails to points of interest within proximity of the main trail. The plan provides broad guidelines for developing, managing, and marking these trail segments.

Section 5(a)(10) of the National Trails System Act provides that: "The State of Wisconsin in consultation with the Secretary of the Interior, may, subject to the approval of the Secretary, prepare a plan for the management of the trail." Although the State had intended to begin preparation of the comprehensive plan, severe economic constraints prevented it from doing so. The National Park Service, being ultimately responsible for the plan on behalf of the Secretary of the Interior, has prepared this plan with assistance from the Wisconsin Department of Natural Resources. The State has assisted the National Park Service with fieldwork, coordinated with the Ice Age Trail Council, and provided funds for printing the plan.

C. Definitions

A few key terms need to be defined to help make the plan more understandable.

Administering agency - Always refers to the National Park Service, acting on behalf of the Secretary of the Interior, who by law is charged with overall administration of the Ice Age NST.

Administer, administration - The various activities performed by the National Park Service to coordinate and ensure the development, management, and protection of the Ice Age NST. A listing of these responsibilities can be found in Section V.B.

Managing authority - A public agency, private organization, individual, or other entity, such as the Wisconsin Department of Natural Resources or Ice Age Trail Council, which is directly responsible for the development and/or management of an existing or potential segment of the Ice Age NST.

Development and management - These two words, used separately or together, refer to activities related to establishing a segment of the Ice Age NST on-the-ground and operating it for public use: securing land for the trail, construction, marking, maintaining, policing, providing public information, etc.

Memorandum of agreement or understanding - A signed, written document which describes and formalizes the working relationship between two or more parties involved in administering, developing, managing, or otherwise supporting the Ice Age NST. See Section V.D for further discussion of such memorandums and Appendix B for examples of memorandums of agreement.

II. BACKGROUND OF THE ICE AGE TRAIL

A. The Making of a Glacial Landscape

"Across the northern half of America, from the Atlantic to the Rockies, the Ice Age left a colossal hallmark upon our landscape. It is seen in the headlands of Cape Cod; in the hills of Michigan, but nowhere is this stamp upon the continent more evident and impressive than in Wisconsin. Indeed, the state has lent its name to the most recent advance of the continental ice sheet, the Wisconsin Stage that ended 10,000 years ago." ("Ice Age National Scientific Reserve, A Proposal for Cooperative Conservation"; National Park Service; 1962)

About a million years ago a tremendous ice cap started forming in the Labrador and Hudson Bay regions of Canada. Thus began the Ice Age that ended a mere ten thousand years ago. Four times the ice advanced and four times it retreated. These are the Nebraskan, Kansan, Illinoisan, and Wisconsin stages of the Ice Age. The Wisconsin, or last stage, started thirty to thirty-five thousand years ago and ended some ten thousand years ago, covering a period of twenty to twenty-five thousand years. It was during this nearly 1-million-year Ice Age period that the present topography of the northern part of America was formed. It accounts for the locations of the Great Lakes and such rivers as the Ohio, Missouri, and St. Lawrence. It accounts for most of the rivers, lakes, and land formations in Wisconsin.

B. Preserving the Landscape and Establishing the Trail

Wisconsin's efforts to preserve its Ice Age areas began in earnest in the 1930's. The focus of this effort shifted to the national scene in the late 1950's. Also during the late 1950's a group of private citizens organized the Ice Age Park and Trail Foundation to help spur this effort. The first major step in this effort occured when the Act of October 13, 1964, 78 Stat. 1087, 16 U.S.C. 469d et seq., was enacted establishing the Ice Age National Scientific Reserve.

The legislation directed the Secretary of the Interior, in cooperation with State and local officials in Wisconsin, to prepare "a comprehensive plan for the protection, preservation, and interpretation of outstanding examples of continental glaciation in Wisconsin." The plan that was prepared recommended that there be "a study of the suitability and feasibility of an Ice Age Trail across Wisconsin" and specified that the Wisconsin Department of Natural Resources and the National Park Service should cooperate in such a study. The trail would be for hiking and biking and would connect the nine detached units of the reserve as well as other points of Ice Age interest.

The 1964 legislation and subsequent comprehensive and master planning for the Ice Age National Scientific Reserve prompted further efforts and interest in establishing an Ice Age Trail. To implement the plans and develop this trail, the Ice Age Park and Trail Foundation in 1975 organized the Ice Age Trail Council for the purpose of developing and maintaining the trail. The council is a private citizens group made up of local chapters specifically responsible for the various segments of the Ice Age Trail. There will eventually be at least one local chapter for each of the 23 counties through which the trail passes.

These views of and from the trail in Gibralter Rock County Park in Columbia County illustrate the outstanding glacial scenery which awaits users of the Ice Age NST.

The Ice Age Park and Trail Foundation works closely with the council and has the primary responsibility of providing financial support and overall guidance for the development and maintenance of the Ice Age Trail. The foundation also advises the Wisconsin Department of Natural Resources on matters concerning the trail and the Ice Age National Scientific Reserve units. It is largely through the efforts of the foundation and council that the Ice Age Trail has come into existence.

C. The Trail as It Exists Today

The existing Ice Age Trail extends from Potawatomi State Park in Door County to Interstate State Park in Polk County. The primary trail was established for hiking and is approximately 1,000 miles long. An alternate bicycling route of approximately 950 miles was also established. There are instances where the two routes coincide with each other. However, they are primarily separate routes laid out to complement each other. To provide an uninterrupted hiking route, a combination of overland and road trail segments are used. The bicycling route basically follows roads. For a description of the bicycle route, refer to "On the Trail of the Ice Age" by former U.S. Representative Henry S. Reuss.

The Ice Age Park and Trail Foundation set forth criteria which have been used for selecting and establishing the trail route as it exists today.

1. It should connect as many of the Ice Age National Scientific Reserve units as possible. (Because of some of the other criteria, only six of the nine units are connected by the trail. They are Kettle Moraine State Forest-Northern Unit, Cross Plains, Devil's Lake State Park, Chippewa Moraine, Interstate State Park, and Two Creeks Buried Forest. See the map on page 6.)

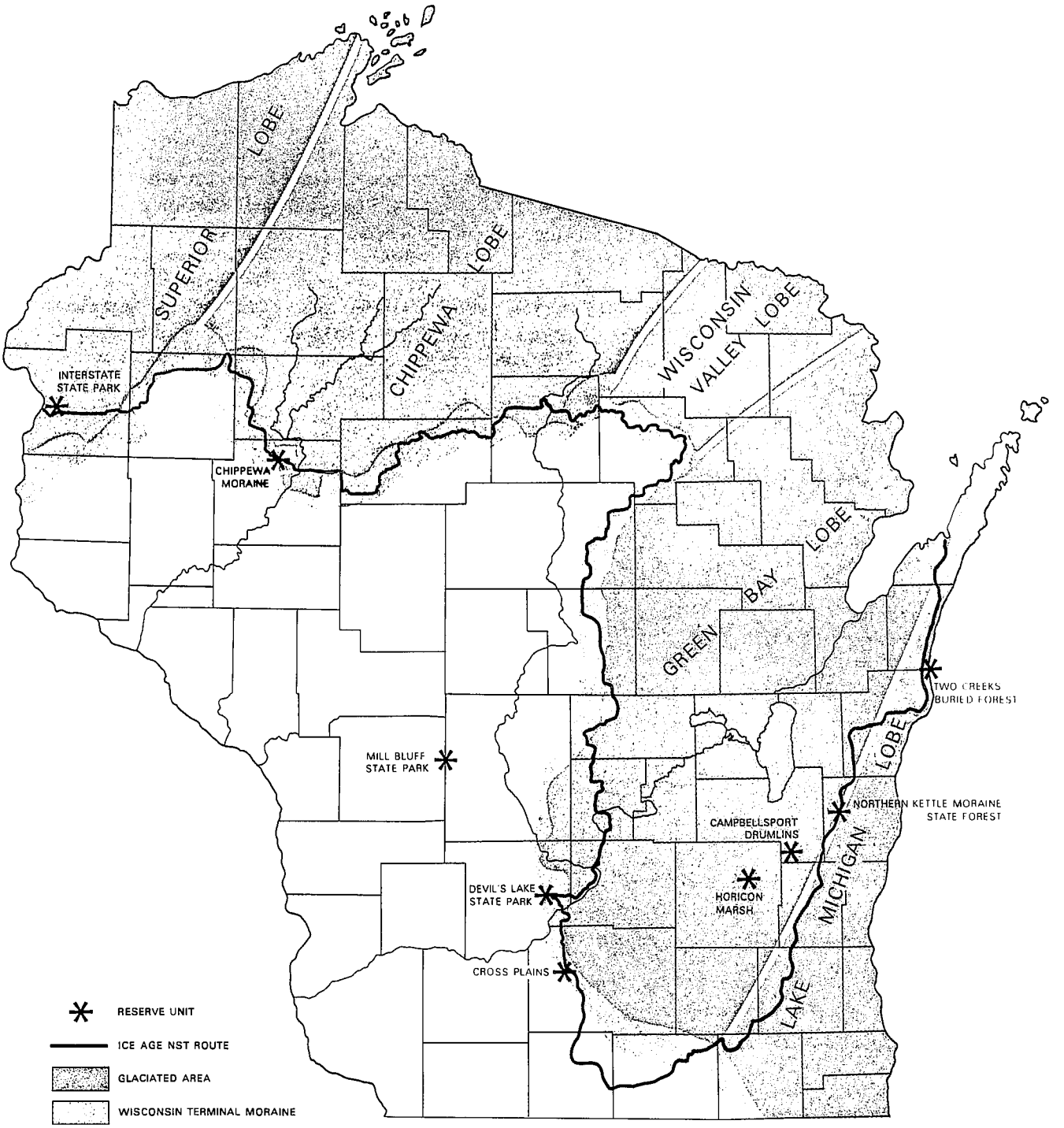
2. The trail should follow the terminal and interlobate moraines as nearly as possible.

3. Whenever possible, the trail should utilize public lands or established State trails. (Approximately 237 miles of existing off-road trail are located on public lands including the Ahnapee and Sugar River State Trails.)

4. The purchase of private lands should be minimal. (The Ice Age Park and Trail Foundation and the Ice Age Trail Council have been successful in obtaining the permission of private landowners in permitting the trail to cross their land. This is generally an informal agreement and is easily revocable by the owner. The foundation and council have been encouraging land donation for the right-of-way. To date, they have been successful in keeping purchases to a minimum.)

D. Management of the Existing Trail

From the initial development of the trail to July 1980, the Ice Age Park and Trail Foundation had full responsibility for building and maintaining the trail. In July 1980 the Wisconsin Department of Natural Resources, Ice Age Park and Trail Foundation, and Ice Age Trail Council entered into a Memorandum of Agreement. A copy of that agreement is found in Appendix B. Overall leadership and responsibility for the trail lies with the Wisconsin



WISCONSIN GLACIATION

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Department of Natural Resources (DNR). However, the council and foundation work closely and cooperate with the State in the development and maintenance of the trail.

The Wisconsin DNR has specific responsibility for the trail over State lands, while on private lands, the council assumes responsibility. Both the DNR and council share responsibility for the trail over other public lands. The foundation provides overall guidance for the trail and funds for its development and maintenance.

The addition of the National Park Service into this management scheme as administrator of the Ice Age NST, as now authorized and designated by Congress, will not diminish, usurp, or affect in any way the respective roles of the DNR, the council, or the foundation. They will continue to play the roles defined in their July 1980 Memorandum of Agreement, as further described in Section V. The obligation for developing and managing the Ice Age NST will be jointly assumed by the National Park Service, Wisconsin DNR, Ice Age Trail Council, and Ice Age Park and Trail Foundation in cooperation with all concerned private and public interests.

E. Previous Ice Age Trail Publications

As development of the trail progressed, it became apparent that information about the Ice Age Trail was needed. The first publication was written in 1976. It was revised and expanded in 1981 to describe the trail in more detail. This latest publication, "On the Trail of the Ice Age," was written by former U.S. Representative Henry S. Reuss of Milwaukee, Wisconsin, and published by Raintree Publishers, Inc. in Milwaukee. It discusses the great Wisconsin Glacier, natural features of interest near the trail, prominent individuals associated with the trail, the Ice Age National Scientific Reserve units, the work which went into preserving the Wisconsin Ice Age legacy, and finally, the Ice Age Trail itself. In addition to the publications by Mr. Reuss, there have been documents prepared by chapters of the Ice Age Trail Council and various magazine and news articles published by journalists throughout the State.

III. THE ROUTE OF THE ICE AGE NATIONAL SCENIC TRAIL

One of the primary responsibilities of the Secretary of the Interior as overall administrator of the Ice Age NST, acting through the National Park Service, is identifying the specific route of the trail. This section of the Comprehensive Plan for Management and Use discusses the trail route which has been identified during the current planning process--how it was identified, the method for making future changes in the route, and the manner in which the route has been depicted on the maps in Appendix F.

A. How the Route Was Identified

National Scenic Trails are described in Section 3(b) of the National Trails System Act (16 U.S.C. 1242(b)) as ". . . extended trails so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass." A more specific length and location for the Ice Age NST are given in Section 5(a)(10) (16 U.S.C. 1244(a)(10)) which describes the trail as ". . . a trail of approximately one thousand miles, extending from Door County, Wisconsin, to Interstate Park in Saint Croix County, Wisconsin, generally following the route described in 'On the Trail of the Ice Age - A Hiker's and Biker's Guide to Wisconsin's Ice Age National Scientific Reserve and Trail,' by Henry S. Reuss, Member of Congress, dated 1981." (Note: This legislation authorizing the Ice Age NST contains a minor error; Interstate State Park, the western terminus of the trail, is actually located in Polk County.)

Using this as the basis for selecting the trail route, an evaluation was made of the existing Ice Age Trail described in the Act and the criteria which were used by the foundation and council in establishing that route (see Section II.C). As a part of this evaluation, field verification of the trail, its uses, and associated facilities was required. To accomplish the field verification, a package of topographic maps showing the general route of the trail was prepared by the National Park Service and sent to the Wisconsin DNR. That agency's field personnel were in turn instructed to verify the trail's location on these maps, noting particularly all overland trail segments, and identify natural, cultural, historic, and recreational resources located near the trail, especially any campgrounds and drinking water sources.

In addition to the criteria established by the foundation for routing the existing trail, two others were formulated and used in identifying the route of the Ice Age NST shown on the maps in Appendix F.

1. It should be a continuous overland (off-road) trail.

The use of motorized vehicles by the general public along any National Scenic Trail is specifically prohibited by Section 7(c) of the National Trails System Act (16 U.S.C. 1246(c)). (See Section VII for a discussion of the exception which permits snowmobiling on some segments of the Ice Age NST.) Consequently, segments of the existing Ice Age Trail presently routed on public roads cannot be designated as the official route of the Ice Age NST. This criteria, however, does not preclude the use of abandoned or little-used logging roads, very short pieces of little-used country roads,

The Ice Age NST is intended to be a continuous off-road trail.

Photo by R. W. Cromer

or short segments (usually less than 1 mile) of other roads and bridges when necessary in order to cross rivers, lakes, interstate highways, dams, etc. (See Section V.A.1 for additional discussion on use of public road rights-of-way.)

2. As many of the Ice Age National Scientific Reserve units as possible should be made accessible to the trail user.

To accomplish this, while complying with Section 5(a)(10) of the Act, side trails should be developed where they are feasible. Side trails are discussed in more detail in Section VI.C.

Utilizing the criteria and field data, the National Park Service and the Wisconsin DNR working with the Ice Age National Scenic Trail Advisory Council developed a route for the Ice Age NST. This route is shown on the maps in Appendix F. As required by the Act, the trail closely follows the route of the existing Ice Age Trail, from Potawatomi State Park in Door County to Interstate State Park in Polk County. Differences occur where existing road segments have been replaced with proposed overland trail segments.

B. Future Changes in the Route

The National Trails System Act recognizes the fact that circumstances may necessitate changes in the route of a National Scenic Trail after the route has been initially determined. Subsequent development of private lands and other changes in land use patterns as well as overuse and other trail management problems can make relocation of a certified segment of the Ice Age NST necessary. (See Section VI regarding certification.)

Relocation of portions of the trail is always possible. When a change in the route becomes necessary, the responsible managing authority should contact the National Park Service which will review the proposed new route for the segment. When the new trail is completed, the National Park Service, acting on behalf of the Secretary of the Interior, will certify the new trail as the official route of the Ice Age NST.

The one exception to this procedure is for significant changes in the route, i.e., major changes in the overall route of the trail, which the law says must be approved by an act of Congress.

C. Explanation of the Maps and Map Symbols

An overall map and 101 section maps of the Ice Age NST route are found in Appendix F. Two of the trail route symbols identify existing overland trails - those which can be immediately certified as the first segments of the Ice Age NST and those which are potentially certifiable in the future following the procedures discussed in Section VI. A third route symbol identifies high potential routes for future segments where no overland trails currently exist. A fourth trail symbol identifies segments of the existing Ice Age Trail located on roads which provide a connection to overland trail segments. Other symbols identify public land ownership, support facilities along the trail route, and permitted uses in addition to hiking. Following is a more detailed explanation of each of these symbols.

Existing Trail - Certified NST is represented on the 101 section maps by a solid red line. These existing overland trails appear to be managed in accordance with the policies in this plan and the responsible managing authority has granted permission to certify the trail as an official segment of the Ice Age NST. These trails will be the first segments of the Ice Age NST upon final publication of this plan and subsequent publication of the route in the "Federal Register."

Existing Trail - Potentially Certifiable is represented on the maps by a dashed red line. These are existing overland trails which also appear to be managed in accordance with the policies in this plan. These trails are not being certified as official segments of the Ice Age NST at the present time because the responsible managing authority has not yet granted permission to do so.

High Potential Opportunity for NST is represented by a dotted black line. These are known opportunities for establishing a segment of trail because of either a specific/special routing opportunity, such as an abandoned railroad right-of-way, or the existence of public lands.

Connecting Road Segment to NST is represented on the maps by a black and white striped line. These are segments of the existing Ice Age Trail which are located on public roads and therefore do not qualify for certification as the official route of the NST. However, they do provide connecting routes between certified or certifiable segments of the NST and are therefore shown on the maps. The connecting road segments also serve to identify a general location for the development of future overland Ice Age NST segments.

Public Land Ownership is shown on the maps with three symbols. State-owned lands are shaded grey. County-owned lands are crosshatched diagonally from lower left to upper right. Federal (Forest Service-USDA) lands are crosshatched diagonally in the opposite direction (i.e., upper left to lower right).

Four kinds of basic Facilities needed by hikers and other permitted trail users are shown on the maps. Distinct symbols indicate the location of camping sites, shelters, drinking water, and toilets.

In addition to hiking, which is permitted on all segments of the Ice Age NST, four other Trail Uses are permitted on various segments of the trail. Symbols on the maps indicate segments on which bicycling, ski touring, horseback riding, and/or snowmobiling are also permitted.

IV. SIGNIFICANT RESOURCES AND THEIR PROTECTION

The route of the Ice Age NST brings the visitor in contact with many natural, historic, cultural, and recreational resources for his or her exploration and enjoyment. Because of the nature of the trail and the purpose for which it is being established, the vast majority of the features along the trail are of the "natural" resource category. In effect, it follows a scenic corridor through Wisconsin based on the Wisconsin Terminal Moraine and other glacial features as depicted on the map on page 6. The narrative which follows provides an overview of the resources within each of the above categories and how they can be protected. In his book "On the Trail of the Ice Age," former U.S. Representative Reuss discusses in more detail a number of the resources, particularly the natural ones. The narrative description of resources begins at Potawatomi State Park in Door County and proceeds to Interstate State Park in Polk County. Significant resources along the trail route are identified on the 101 section maps in Appendix F.

A. Description of Resources

1. Natural and Scenic Resources

The natural features along the trail route resulted from glacial forces shaping the landscape, or from other natural forces acting on glacial features and/or the landscape the glacier left behind.

Moving south from Potawatomi State Park, the trail traverses a glacial spillway and eventually comes near Lake Michigan. For the next 40 miles, it traverses this coastal area where glacial till and limestone terraces are evident. These limestone terraces resisted the glacier and show water ridges from Lake Michigan's predecessor, Lake Nipissing. Located on Lake Michigan and along the trail is Two Creeks Buried Forest, one of the nine Ice Age National Scientific Reserve units.

Near the city of Two Rivers, the trail turns inland leaving the zone of Lake Michigan's influence. At this point, it begins to encounter terminal, ground, and interlobate moraines, drumlins, kames, kettle lakes, erratic rocks, eskers, and marshes which were once glacial lakes. Outstanding examples of kames, eskers, kettles, knobs, and swales are found in the northern unit of Kettle Moraine State Forest which is one of the Ice Age National Scientific Reserve units.

At its southern extension near Milton Junction, the trail leaves the major end moraine and crosses unglaciated terrain for a short distance. As it turns north, it traverses a driftless area, passing through Cross Plains, another Ice Age National Scientific Reserve unit, then through the Johnstown End Moraine, finally entering the glaciated edge of the Wisconsin River. Although the trail crosses other rivers, the Wisconsin is by far the largest.

Upon crossing the Wisconsin River, the trail enters the Baraboo Range, a National Natural Landmark. Located here is Devil's Lake State Park, also an Ice Age National Scientific Reserve unit. Upon leaving the Baraboo Range, the trail traverses a lake basin formed by the now extinct glacial Lake Wisconsin. Shortly afterwards it again encounters moraines, glacial lakes, knobs, kettles, erratics, and marshes while moving between the terminal moraine and outwash plain.

This kettle lake in the southern unit of Kettle Moraine State Forest is one of many to be seen along the Ice Age NST. Such lakes result from large blocks of glacial ice becoming buried in sand and gravel deposits of the glacier (glacial drift).

In Langlade County the trail turns westward. This area was once a highly mountainous region. However, movement of the glacier through here left behind a rather smooth landscape.

The trail now begins that portion of the route which offers some of the best wilderness experience to the visitor. It is also this area which was extensively logged during the 1800's. As a result, the forests are in a state of reforestation. Throughout this region, the trail follows the Chippewa and Superior end moraines and encounters "stagnant ice" glacial formations as well as "perched lake plains," small kettles, forest covered kames and knobs, glacial ridges, and numerous lakes. The trail passes through the Chippewa Moraine unit of the Ice Age Reserve, finally coming to Interstate State Park.

Throughout its route, the trail passes near several scientific areas, preserves, and National Natural Landmarks. These are discussed in former U.S. Representative Reuss' book and shown on the maps in Appendix F. Where it is feasible and desirable, they should be connected to the main trail by side trails.

A range of vegetation is experienced along the trail route. Throughout Lake Michigan's coastal area, one sees a succession of vegetation beginning with the dune grasses and dwarf and creeping junipers along Lake Michigan's shore to coniferous and deciduous vegetation further inland. Where the trail turns inland, the successional vegetation of the coastal area gives way to forest stands of hardwoods and softwoods. Around lowlands, marshes, and lakes, vegetation reflects the moist environment. The trail also passes by or through prairies and cranberry bogs.

The topography throughout the route of the trail is quite rolling. There are, however, instances where the elevation changes as much as 300-400 feet. From Lake Michigan to the highest point along the trail in Langlade County there is about a 1,200-foot difference in elevation.

The trail user can see an abundance and variety of wildlife. Waterfowl are perhaps the most plentiful around marshes and lakes, especially in the spring and fall. Black bear and deer are the large mammals found along the route. Smaller mammals include the raccoon, mink, weasel, rabbit, squirrel, fox, woodchuck, skunk, badger, beaver, and porcupine, to name a few.

2. Historic and Cultural Resources

Many of the historic and cultural resources associated with the Ice Age NST are found within the communities located along the trail route. These include museums and restored structures. Some of the latter are on the National Register of Historic Places, including some which are National Historic Landmarks. Many communities reflect the European ethnic origins of those who settled them. In some instances, their descendants carry on the traditional ethnic festivals brought with them, adding to the area's historic and cultural significance.

Numerous stones and boulders were transported and deposited by the glacier which have had an influence on the way in which a farmer works his land. These boulders, called erratics, often surfaced while plowing and farmers moved them to the edges of fields and built stone walls. Hikers using the

Ice Age NST will encounter many such stone walls. The boulders also provided a source of building materials and occasionally can be seen in structures along the trail route.

Additional farmland was gained by draining marshes which were once glacial lakes. In some instances, these farming efforts were abandoned and the marshes were restored.

Large sections of the State through which the trail passes were heavily logged leaving in many instances a denuded landscape along with abandoned sawmills and railroad lines, evidence of which can still be found along the trail.

The trail passes through areas in which a number of Indian battles occurred. Also, many early explorers and fur traders moved through the area.

3. Recreational Resources

Recreational resources abound along the entire route of the Ice Age NST. One of the criteria used in selecting a route for the trail was that public land should be used whenever possible. As a result many national, State and county forests; State, county, and municipal parks; and national and State wildlife refuge lands are connected by the trail. These are shown on the maps in Appendix F. These resources offer a variety of recreational opportunities: fishing, bicycling, camping, hiking, skiing, swimming, boating, and snowshoeing.

B. Protecting the Resources

The Ice Age NST is not the type of facility which by itself can protect a resource as can, for example, a national forest or State park. The trail basically occupies a narrow strip of land. However, the managing authority responsible for a given segment of trail, working by itself or with others, may have an opportunity to protect significant resources associated with the trail.

Several methods can be used to protect resources along the trail route. They are fee acquisition, easements, cooperative agreements, assistance, registration, and monitoring. The degree to which these are used will depend on who owns or manages the resource.

1. Fee Acquisition

When a resource is significantly threatened and all other forms of protection have failed, then outright purchase may be necessary. Because of the high initial cost of outright purchase and the continuing management burden on the purchaser, this form of protection should only be used as a last resort.

2. Easements

Easements are a form of protection in which certain rights are purchased by the grantee thus creating a dominent tenancy and a servient tenancy. The managing authority acquiring the easement obtains certain rights to enter on

and do certain acts on the property on which the resource is located. In this case, it would be the acquisition of an easement for the purpose of constructing, operating and maintaining a trail for the use of the public-at-large. The resource owner-manager would thus be agreeing not to interfere with or to restrict the rights of the general public to cross his land over the described trail easement or right-of-way. These rights would be purchased by the managing authority and will remain in effect for the time that the easement is used for trail purposes.

3. Cooperative Agreements

Under this form of protection, the managing authority negotiates an agreement with the owner of the resource for the purpose of protecting that resource. Usually under this agreement, the party seeking protection of the resource agrees to provide certain forms of assistance to the owner to ensure the resource's protection. This could be technical and/or financial assistance. Whether the owner would contribute toward the resource's protection would be determined by the agreement. The resource, however, would remain under the control of the owner. Cooperative agreements will be discussed in more detail in Section V.D.

4. Assistance

This form of protection differs from assistance discussed under cooperative agreements. Assistance would be technical and/or financial but would come more from the private sector or through Government grants. Usually the owner wants to retain control of the property and is doing a reasonable job in protecting the resource. The managing entity could work with the owner in seeking assistance to ensure that efforts to protect the resource continue.

5. Registration

This category of protection refers to the listing of historic sites and structures on the National Register of Historic Places or as registered National Historic Landmarks. Natural sites could be registered as National Natural Landmarks. Registration is a limited form of protection. It leaves routine protection of the site or structure to the owner, but provides a degree of protection if a proposed Federal project or action would alter the site or structure. When Federal funding is involved, consideration must be given to the possible effects of the project on the site or structure.

6. Monitoring

A number of the natural and recreational resources associated with the trail are presently under public ownership. The managing authority would monitor these lands to ensure that they are not abused or threatened. If such were to occur, steps could be initiated to protect the resource. The same would be true for resources under private ownership. Many are under no immediate threat. However, they should be monitored and steps should be taken to correct any problems that might occur.

V. ADMINISTERING AND MANAGING THE ICE AGE NST

Designation of the Ice Age NST as a component of the National Trails System set in motion a series of procedures delineated in the National Trails System Act (82 Stat. 919; 16 U.S.C. 1241) for planning and implementing the trail. The authorities contained in the Act provide a framework for establishing two broad areas of responsibility for the Ice Age NST. For the purposes of this plan, these are termed administration and management.

Administration of the Ice Age NST is the responsibility of the National Park Service, acting on behalf of the Secretary of the Interior who by law is charged with overall administration of the trail. This responsibility requires the National Park Service to play the roles of catalyst and coordinator, as manifested in the list of specific responsibilities given in "B", below.

Management of the Ice Age NST is the responsibility of the various Federal, State, and local agencies, private organizations, and individuals which are directly involved in establishing and operating segments of the Ice Age NST or otherwise supporting the trail. The following discussion of "Management Policies, Practices, and Responsibilities" describes in more detail the responsibilities of these cooperating interests and how they should be carried out.

A. Management Policies, Practices, and Responsibilities

The National Trails System Act requires that the development and management of the Ice Age NST be a cooperative effort involving Federal, State, and local agencies and private trail interests. Therefore, a great variety of trail management philosophies and policies and trail development and maintenance standards will come to bear on the trail. The National Park Service believes that it is neither possible nor appropriate to prescribe uniform policies and standards that would be applicable to all segments of the trail. Further, the National Park Service does not want to place unnecessary obstacles, such as changing a long-established trail policy or redeveloping a trail to meet certain prescribed standards, in the way of an agency or organization that otherwise wishes to become a partner in the Ice Age NST.

The trail management policies and practices which are discussed below (along with their legislative basis) are generally intended, with a few exceptions, to be guidelines which participating agencies and organizations are encouraged to follow to the extent possible. They are intended to be flexible and will encompass most jurisdictions' existing trail policies and practices. Nearly all jurisdictions should be able to conclude, after a reading of this section, that management of their trails can continue according to their existing policies and practices.

There are a few exceptions to this intended flexibility and these will be obvious from the wording. An example is the prohibition of motorized use of the trail by the general public, except for snowmobiling on segments where it has been jointly approved by the managing authority and the Secretary of the Interior acting through the National Park Service.

It seems appropriate when stating and discussing a policy to also describe the responsibilities of the various trail interests in carrying out the policy. Most of the policy discussions, therefore, identify the public or private trail interests that will be responsible for implementing various aspects of the particular policy.

1. Locating a Route for the Trail

An important part of the Secretary of the Interior's responsibilities, carried out by the National Park Service, is selecting and certifying specific trail segments for the Ice Age NST. Selection of specific routes will be accomplished through working closely with public and private entities engaged in developing and managing segments of the trail.

Where there is no existing trail and the maps show only a high potential opportunity or a general location for a future trail segment, as evidenced by a connecting road segment, the appropriate potential managing authority should take the lead in identifying a specific route for the trail in close consultation with the Wisconsin Department of Natural Resources and the National Park Service. When searching out possible routes, managing authorities should be mindful of the protection that would be afforded the trail and associated resources and providing the user a high quality experience isolated whenever possible from external intrusions and distractions.

When identifying specific routes for the trail, all involved public and private entities must bear in mind that Section 7(a) of the Act requires that ". . . full consideration shall be given to minimizing the adverse effects upon the adjacent landowner or user and his operation. Development and management of each segment of the National Trails System shall be designed to harmonize with and complement any established multiple-use plans for the specific area in order to ensure continued maximum benefits from the land."

The availability of existing public recreation sites that provide needed support facilities (water, overnight camping, etc.) should be an important consideration in identifying a specific route for the trail. Public and private funds for obtaining land and developing new recreation sites are extremely limited.

Generally, the official route of the Ice Age NST may not be located on roads or on the shoulder of roads open to motorized use by the general public. The trail may be located within the public right-of-way of a road if the right-of-way is wide enough to permit the trail to be established safely beyond the shoulder and/or drainage ditch of the road. Location of the trail within public road rights-of-way or immediately adjacent to the right-of-way should be kept to a reasonable limit so that the trail user is not continuously exposed to the sights and sounds of motor vehicle traffic. This prohibition, however, does not preclude the use of abandoned or little-used logging roads, very short pieces of little-used country roads, or short segments (usually less than 1 mile) of other roads and bridges when necessary in order to cross rivers, lakes, interstate highways, dams, etc. Whenever roads and highways or their rights-of-way are to be used for the Ice Age NST or crossed by it, those seeking to establish the segment should consult with the appropriate State and local highway officials.

Portions of the existing Ice Age Trail follow abandoned roads and little-used logging roads. These are acceptable locations for segments of the Ice Age NST.

Photos by R. W. Cromer

Because it will be many years before certifiable trails are established for some portions of the Ice Age NST route, and because it is desirable in the interim to identify other routes which link together certified NST segments, the National Park Service will recognize as "Ice Age Trail Connecting Road Segments" other marked routes which do not qualify for certification as the official NST due to their location on roads. "Connecting Road Segments" should be marked but may not be signed with the official Ice Age NST marker (see Section VIII for further guidance). Recognition will be in the form of including them on maps of the Ice Age NST and referring to them in written descriptions of the Ice Age NST route. "Connecting Road Segments" are shown on the maps in Appendix F.

Side trails which extend from the main route of the trail may be established by Secretarial designation as provided in Section 6 of the National Trails System Act (16 U.S.C. 1245). The purpose of side trails is to provide additional points of public access to the trail or access from the trail to nearby points of interest. A more complete discussion of the establishment of side trails is found in Section VI.

2. Protecting Land for the Trail

As originally passed in 1968, the National Trails System Act provided for a fairly comprehensive Federal land acquisition program. However, amendments in 1978 and 1980 have restricted that authority. Expenditure of funds by Federal agencies to acquire lands or interests in lands is now restricted to acquisition of non-Federal lands within the boundaries of existing Federal areas. This acquisition is intended to be done by the agencies which manage the Federal areas when deemed necessary to carry out the purposes of the trail. Federal land managing agencies may also establish trail rights-of-way across private lands within their boundaries through agreements with private landowners.

The Act directs the Secretary of the Interior to encourage State and local governments to enter into agreements with landowners or to purchase interests in lands to establish the trail outside existing Federal areas. However, Section 7(e) of the Act (16 U.S.C. 1246(e)) provides that ". . . if the State or local governments fail to enter into such written cooperative agreements or to acquire such lands or interests therein. . ." outside existing Federal areas, then the Secretary may enter into such agreements or acquire lands by donation or exchange in order to secure the lands necessary for the trail. This authority would only be used to establish critical links in the trail.

The appropriate public agency or private organization or individual which would be the responsible managing authority for a particular segment of the Ice Age NST should take the lead in securing the lands necessary for that segment. Lands for the trail should be secured or acquired in a manner less than outright purchase (fee acquisition) to the extent possible. Less-than-fee acquisition methods such as leases, easements, or simple use agreements can provide adequate protection for the trail and help stretch limited public and private financial resources. Public agencies as well as private trail organizations should use these methods whenever possible. In determining the best approach to secure lands for the trail it is important that some degree of permanence for trail segments on private land be sought. A verbal agreement and handshake may be all to which a landowner is willing to commit, but this offers little permanency, and subsequently, such segments may be not certifiable. Sample copies of a written trail easement and an

oral easement record letter used by the Ice Age Park and Trail Foundation and Ice Age Trail Council are found in Appendix D of this plan. The National Park Service will provide additional information and technical assistance on the use of less-than-fee acquisition techniques.

In keeping with the concept used to establish the Ice Age National Scientific Reserve units it seems that right-of-way conveyances related to development of the Ice Age NST could be turned over to and held by the Ice Age Park and Trail Foundation. Eventually, the Wisconsin Department of Natural Resources might in turn be the recipient of long, continuous trail easements or titles. Working in concert with the State and the foundation, the National Park Service will develop a strategy regarding a central depository for donations and other legal conveyances of land rights for the Ice Age NST.

The National Trails System Act Amendments of 1983 (97 Stat. 42) added subsection 7(k) to the Act authorizing tax deductions as an incentive to encourage private landowners to donate easements, rights-of-way, or other real property interests for components of the National Trails System to qualified organizations. Landowners and recipient organizations should consult with an attorney before making or receiving a donation of real property interests.

Outright purchase or fee acquisition of lands for the trail should be limited to instances where it is necessary to preserve key trail segments and associated resources, to provide for and manage public access to the trail, to minimize adverse effects upon private landowners or users and their operations, and when other methods to secure lands for the trail have failed. Since expenditure of funds by Federal agencies to acquire lands or interests in lands for the trail outside existing Federal areas is prohibited by law, essentially all actions to secure land for the trail will have to be taken by non-Federal entities.

The extent of land area which needs to be protected and/or managed for the Ice Age NST is a matter to be determined by the local managing authority and should reflect the resource management objectives and the unique environmental characteristics and opportunities associated with each portion of the route as well as the type of experience which the managing authority desires to provide for the trail user. The decision will be influenced by the surrounding land uses, the terrain, the need for sight and sound buffers, and the ease or difficulty of securing or setting aside lands to be managed for the trail. The lands associated with and managed for the trail may therefore vary from a mere 2-foot tread to 1,000 feet or more.

All agencies and organizations involved in establishing segments of the Ice Age NST across private lands should become thoroughly familiar with Wisconsin legislation which limits the liability of landowners for injuries suffered by recreational users while on their property. Fear of liability in such instances is a major obstacle to obtaining permission to route public trails across private lands. The recent amendments to the National Trails System Act provide a secondary means, in addition to State statutes, to protect landowners from liability. Landowners who agree in writing to allow the Ice Age NST to cross their land and to provide for routine maintenance can be granted "volunteer in the park" status under the Volunteer in the Parks Act of 1969 (16 U.S.C. 18g note). The written agreement and the volunteer status it conveys will protect the landowner from personal liability arising out of actions undertaken as a part of the agreement.

The 1983 amendments also provided a legal mechanism to assist in the acquisition and/or use of unutilized railroad rights-of-way for trail purposes. Frequently the claims of adjacent landowners frustrate the conversion of abandoned railroad rights-of-way to trails. However, if a State, political subdivision, or qualified private organization is willing to assume full responsibility for a right-of-way, including management, legal liability, and taxes, and the right-of-way is subject to restoration for railroad purposes, then its use as a trail shall not be treated under law as an abandonment for railroad purposes.

3. Trail Planning

All managing authorities participating in the Ice Age NST should prepare a brief written document concerning the development, management, and protection of the trail as an integral part of the process of establishing the trail. Managing authorities seeking certification of a trail as an official segment of the Ice Age NST will be required to provide the information in such documents as part of the certification application (see Section VI). Such documents should be consistent with this Comprehensive Plan for Management and Use.

4. Developing the Trail and Related Facilities

Concerning development of National Scenic Trails, Section 7(c) of the National Trails System Act (16 U.S.C. 1246(c)) states: "National scenic . . . trails may contain campsites, shelters, and related-public-use facilities. Other uses along the trail which will not substantially interfere with the nature and purposes of the trail, may be permitted by the Secretary charged with the administration of the trail. Reasonable efforts shall be made to provide sufficient access opportunities to such trails and, to the extent practicable, efforts shall be made to avoid activities incompatible with the purposes for which such trails were established."

Emphasis should be placed on harmony with the surrounding environment when designing and developing segments of the trail and related facilities. The trail should be designed to cause minimal disturbance to the environment and take advantage of the natural features, topography, and resources within the area. User facilities should blend into the surrounding landscape and be constructed with materials indigenous to the area.

All participating managing authorities should utilize established and accepted design and construction standards when developing the trail. With few exceptions, this permits public agencies to use their own established trail construction standards. Public and private managing authorities which have not adopted trail standards may wish to consider utilizing those which have been adopted and used by the Wisconsin Department of Natural Resources (DNR). The Trail Specifications Handbook used by the DNR is included in this plan as Appendix E.

Two other good sources of information, guidelines, and standards are the Appalachian Trail Conference's new (1981) publication, "Trail Design, Construction, and Maintenance," and the Appalachian Mountain Club's new (1981) field guide, "Trail Building and Maintenance." In addition, the National Park Service recently published an "NPS Trails Management Handbook" and the Forest Service-USDA, Eastern Region, is presently in the process of preparing trail development guidelines.

All uses that will be permitted on a given segment of the trail must be considered by the managing authority when designing and selecting construction standards for the trail.

Public agencies and private organizations establishing segments of the trail should be mindful of the need to route the trail near, or develop at convenient intervals along the trail, support facilities such as campsites, drinking water sources, toilets, parking areas, trail heads, etc. These facilities greatly add to the convenience and comfort of trail users and are very important in avoiding problems of trespassing, disturbing adjacent landowners with requests for water, littering the trail, or contaminating nearby lakes and streams with human waste, etc. A plan for providing such facilities or making such facilities accessible to the trail in the future may be required before a lengthy segment of trail with no nearby accessible facilities is certified.

Providing for overnight use along the trail may include a diversity of arrangements from designated campsites to camping zones (camping permitted along certain segments of the trail) to dispersed back-country camping (camping permitted anywhere along the trail). Types of arrangements and intervals between overnight use areas may be according to the managing authority's existing policies and practices. Those which have no established policies may wish to consult guidelines established by other agencies and organizations.

To the extent possible or permitted by policies, public agencies which participate in developing and managing the trail should use volunteer labor to construct the trail in order to keep expenditures of public funds to a minimum. Volunteer trail organizations which develop Ice Age NST segments on public lands should always contact and consult with the managing agency to receive necessary permission and guidance before undertaking any work. Recent amendments to the National Trails System Act encourage and authorize Federal land-managing agencies to assist volunteers in planning, developing, maintaining, and managing trails.

5. Funding

Each managing authority or other entity cooperating in the Ice Age NST project is responsible for obtaining funding for its activities related to the trail. Funding may be obtained through Government appropriations, Government or foundation grants, donations, organization dues, fundraising campaigns and events, etc. The National Park Service will provide technical assistance and information to cooperating agencies and organiztions on various methods of obtaining necessary funds. Section 10(c) of the National Trails System Act (16 U.S.C. 1249(c)) authorizes appropriations to support the Federal role as described in this plan.

6. Use of the Trail

The types of use permitted on National Scenic Trails is limited by Section 7(c) of the National Trails System Act (16 U.S.C. 1246(c)), which states: "The use of motorized vehicles by the general public along any national scenic trail shall be prohibited. . ." This clearly implies that National Scenic Trails are potentially, but not necessarily, open to all nonmotorized trail activities. However, an exception to the prohibition of motorized use is provided for the Ice Age NST in Section 5(a)(10) of the Act: "Notwithstanding the provisions of Section 7(c), snowmobile use may be

permitted on segments of the Ice Age National Scenic Trail where deemed appropriate by the Secretary [of the Interior] and the managing authority responsible for the segment." This is permissive language and does not mean that the entire Ice Age NST will be open to snowmobiling.

In view of these legal guidelines, all certified segments of the Ice Age NST shall be open to travel by foot, i.e., hiking and backpacking. Other non-motorized uses, including bicycling, horseback riding, cross-country skiing, snowshoeing, and jogging, may be permitted on a given segment according to the desires and policies of the managing authority responsible for the segment. Snowmobiling may be permitted on a given segment if deemed appropriate by the responsible managing authority and the Secretary of the Interior (acting through the National Park Service).

Multiple use of the trail for activities other than hiking, those which take place during the same season and/or those which take place during other seasons of the year, should be considered. A managing authority responsible for a relatively short segment of the trail should consider the uses permitted on adjacent segments of the trail and consult with the responsible managing authorities when considering additional uses on its own segment.

Uses other than hiking should be permitted only if the activity will not cause significant deterioration of the trail and surrounding environment and the activity can be safely accommodated, i.e., the trail is constructed according to accepted standards for that activity.

Section 7(c) of the Act also provides for other limited types of motorized use of National Scenic Trails. Use of motorized vehicles on or across the trail by the following parties for the specified purposes shall be permitted unless specifically prohibited by the managing authority's regulations: (a) by responsible authorities responding to emergency situations (forest fires, serious injury to a trail user, etc.), (b) by employees or representatives of the managing authority to perform trail maintenance or other official resource management functions, (c) to enable adjacent landowners or land users to have reasonable access to their lands or timber rights, (d) from time to time for any legitimate purpose by private landowners who permit the trail to cross their lands, and (e) by users of established off-road motorized vehicle trails which cross the Ice Age NST (only for the purpose of crossing the Ice Age NST).

Many public and private lands through which the Ice Age NST passes are legally open to hunting during the proper seasons. It is not intended that passage of the Ice Age NST through these lands should in any way lead to their closure to hunting nor that the trail should be closed to use during hunting seasons. Safety for hikers during hunting seasons can best be pursued through education of hikers to wear "hunter's orange" and of hunters to avoid shooting near or across the trail. Regulations in some jurisdictions would require hikers to wear "hunter's orange". Managing authorities responsible for public lands and Ice Age NST segments should post notices at trail entrances notifying hikers of any applicable regulations.

Additional information concerning the use of the Ice Age NST is found in Section VII.

7. Trail Regulations

Managing authorities may issue such regulations as may be necessary to protect and properly manage segments of trail for which they are responsible, providing such regulations do not conflict with the National Trails System Act, this Comprehensive Plan for Management and Use, or any overall regulations which may be issued by the Secretary of the Interior. Regulations needed to protect the trail; public use facilities; markers; and natural, historic, cultural, and recreation resources from vandalism and/or improper use should be as unrestrictive as possible, stated in clear and easily understood language, and widely disseminated.

If deemed necessary, the Secretary of the Interior, with the concurrence of the heads of other Federal agencies administering lands through which the trail passes, and after consultation with participating State and local agencies and private organizations, may issue regulations governing the use, protection, management, and development of the trail. Authority to issue such regualtions is provided in Section 7(i) of the National Trails System Act (16 U.S.C. 1246(i)). Managing authorities should bring to the attention of the National Park Service the need for any overall regulations relating to the entire trail.

8. Trail Maintenance and Protection

The maintenance and safety condition of the trail treadway, bridges, and related support facilities should be monitored and inspected on a regular basis by the managing authority responsible for the trail segment. Needed maintenance and minor repairs should be performed immediately before serious deterioration occurs, necessitating major repairs.

Routine maintenance, such as emptying trash receptacles, toilet cleaning, and litter pickup along the trail, in campgrounds, and at trail heads should be performed on a frequent, if not continuous, basis by the responsible managing authority. Experience and studies have shown that well maintained and clean facilities and areas are more likely to remain that way, i.e., litter begets more litter. Public agencies and private organizations should schedule and assign responsibility for both routine and cyclical maintenance of the trail and its related facilities.

To the extent possible or permitted by policy, public agencies responsible for segments of the trail should use volunteer labor to perform maintenance tasks. Public agencies should establish written agreements for this purpose with private organizations and individuals so that the responsibilities of each party are clearly understood (see Section V.D).

The amount of use which occurs on any segment should be monitored by the managing authority. If heavy use is determined to be the apparent cause of trail deterioration and physical improvement of the trail tread, such as trail "hardening," is not possible or desirable, the managing authority should consider options such as temporary or permanent relocation of the trail, temporary rerouting over other existing trails, controlling the level of use through permits, or simply closing the damaged section, if absolutely necessary. Whenever a certified segment of the Ice Age NST is to be relocated or closed, the National Park Service should be immediately notified.

9. User Protection and Law Enforcement

The managing authority responsible for a given trail segment should provide or arrange for regular patrol of the trail to the extent possible. At a minimum, the appropriate local law enforcement agencies should be informed about the trail and its national status.

10. Marking the Trail

The National Trails System Act requires the Secretary of the Interior to establish a uniform trail marker with a distinctive symbol for the Ice Age NST (16 U.S.C. 1246(c)). Marking the trail and maintenance of such markers should be carried out in accord with the marking program in Section VIII of this Comprehensive Plan for Management and Use. The National Park Service will provide the markers to managing authorities responsible for non-Federal certified segments of the trail.

11. Fees and Permits

Fees and/or permits for use of segments of the trail or related support facilities (campsites) may be established by the managing authority, in consultation with the National Park Service, if necessary to comply with existing policy and regulation of the managing authority, to control or monitor the level of use, or to offset costs of maintaining the trail and facilities. When considering the establishment of a fee system, the managing authority should be mindful that fee systems can cost more to administer than the revenue generated, that many hikers believe fees for use of footpaths and primitive campsites are unjustified because of the low level of development, and that it is difficult to collect fees from users of back-country areas. Any permit systems established by managing authorities for use of the trail or campsites should be designed for easy use by trail users. Permits should be available in advance through the mail to permit users to plan their journey. If possible, the permit should be valid for a period of several days since it is easy for a hiker to get behind schedule due to inclement weather or other factors.

12. Interpretation

Since a primary purpose of a National Scenic Trail is to provide for the enjoyment of the scenic, historic, natural, and cultural qualities of the areas through which the trail passes, managing authorities should plan and provide for the interpretation of such features, particularly the geological features resulting from the Ice Age, as an integral part of the trail. The method of providing such interpretation should be determined by the responsible managing authority in conjunction with an interpretive plan to be prepared by the Wisconsin Department of Natural Resources. The National Park Service will provide technical assistance in the area of interpretation upon request, subject to personnel and financial limitations.

The 1983 amendments to the National Trails System Act authorized the Secretary of the Interior to provide trail interpretive sites along the trail in cooperation with State agencies. The interpretive centers already established as part of the Ice Age National Scientific Reserve should adequately serve the intended purpose.

13. Trail Information and Publicity

A full range of guidebooks, brochures, maps, and other materials concerning the trail should be prepared, published, and made available by mail and at conveniently located points along the trail. Publication of such materials should be a cooperative effort of the National Park Service and the participating public and private trail managing authorities.

The National Park Service will prepare, print, and distribute a general brochure about the trail. The Ice Age Trail Council should take the lead responsibility for the publication and distribution of detailed trail maps and guidebooks. Individual managing authorities are encouraged, at their option, to provide detailed maps, brochures, and guides to their trails and should cooperate with the Ice Age Trail Council in preparing such informative materials. Trail publications can be offered as sale items in order to generate revenue for developing and maintaining the trail.

All trail publications should include educational information emphasizing respect for private property, proper use of the trail and related public and private facilities, and conservation of the values for which the trail was created. Information should make the trail user aware of his or her responsibility in maintaining the trail and protecting associated features and facilities for the enjoyment of other users.

14. Coordination

The National Park Service and the various managing authorities responsible for individual segments should work in close cooperation and communication in order to achieve a consistently high standard of operation and maintenance and a reasonable degree of uniformity in their development.

B. Overall Administrative Responsibilities of the National Park Service

The National Trails System Act assigns responsibility for overall administration of the Ice Age NST to the Secretary of the Interior. The National Park Service, through its Midwest Regional Office, will carry out the Secretary's responsibility for overall administration.

Administrative responsibility for a designated National Scenic Trail presents a relatively new management role for the National Park Service. Unlike the traditional Park management role of managing lands and resources within a given area of Government-owned land, administering a national trail will require orchestrating the efforts of many agencies at all levels of Government and various private sector organizations. Through memorandums of agreement or understanding with other Federal and non-Federal interests, the National Park Service will coordinate the development and maintenance of the trail consistent with this Comprehensive Plan for Management and Use.

The Wisconsin Department of Natural Resources will play the leading role in fostering development and management of the Ice Age NST. However, the National Park Service will have a continuing oversight and assistance role to encourage the trail's development and ensure consistency with the plan. The various tasks involved in carrying out this administrative responsibility are as follows:

1. Coordinating and assisting the preparation of management and use plans by the Federal and non-Federal managing authorities responsible for their respective segments.

2. Developing and entering into agreements with Federal, State, and local agencies and private organizations, as may be necessary for managing the Ice Age NST.

3. Seeking the advice of the Ice Age National Scenic Trail Advisory Council concerning matters relating to the designation, marking, and administration of the trail.

4. Encouraging and assisting public and private interests in developing and managing segments of the trail, thereby implementing the Comprehensive Plan for Management and Use.

5. Assisting public agencies and private organizations which manage trail segments in applying for certification as official segments of the National Scenic Trail.

6. Reviewing and approving applications from various managing authorities seeking to have trails certified as official segments of the Ice Age NST.

7. Developing and maintaining official map records of the route of the Ice Age NST and from time to time arranging for publication in the "Federal Register" of notices of changes in the official route.

8. Monitoring the status of trail segments to ascertain their continued compliance with the plan.

9. Coordinating the development and issuance of any regulations having general application to the trail which may be necessary.

10. Within the framework of existing Federal or Federally-assisted project review procedures (National Environmental Policy Act, National Historic Preservation Act, various executive orders, etc.), reviewing and commenting on pipeline, highway, utility rights-of-way, and other development proposals which may affect trail segments. Recognizing the National Park Service's responsibility under Sections 106 and 110 of the National Historic Preservation Act (16 U.S.C. 470) to protect and preserve significant historical and archeological properties along the trail, the impact of development of the trail on historic and archeological resources will be treated in accordance with the procedures of the Advisory Council on Historic Preservation (36 C.F.R. 800).

11. Arranging for and coordinating marking of the trail, including providing markers to non-Federal managing authorities.

12. Promoting and providing technical assistance for the publication of maps, reports, guidebooks, brochures, and interpretive materials relating to the trail.

13. Providing technical assistance to cooperating managing authorities in all aspects of trail planning, acquisition, development, operation, and maintenance.

The successful completion and continued operation of the Ice Age NST is highly dependent on the volunteer efforts of organized trail users. The Ice Age Trail Council has primary responsibility for coordinating volunteer efforts.

Photo by R. W. Cromer

C. Ice Age National Scenic Trail Advisory Council

In accordance with Section 5(d) of the National Trails System Act (16 U.S.C. 1244(d)), an Advisory Council has been formed for the Ice Age NST. The Council is appointed by the Secretary of the Interior and includes persons representing the State of Wisconsin, Federal agencies involved in the trail, private organizations, and others interested in the trail. The role of the Council is to advise the Secretary on matters relating to the trail, including selection of the route for the trail, standards for the placement and maintenance of trail markers, and administration of the trail. The Council will operate for 10 years, from January 9, 1981, when it was originally established. Individual members serve 2-year terms. The charter for the Council states that it "meets approximately 3 times a year."

D. Cooperative Management System

As previously mentioned, the provisions of the National Trails System Act prohibit direct Federal involvement in the development and management of the Ice Age NST outside of existing Federal areas. It is, therefore, necessary to obtain the cooperation and involvement of other public agencies and private organizations in determining the exact route for the trail, securing the necessary lands, constructing the trail, and performing maintenance tasks.

Vital to the success of the Ice Age NST are private trail interests who will have to assume the largest share of the task of developing and managing the trail. The recent amendments to the National Trails System Act added as a purpose of the Act: ". . . to encourage and assist volunteer citizen involvement in the planning, development, maintenance, and management, where appropriate, of trails." A new Section 11 provides authority to grant volunteer in the park and volunteer in the forest status to volunteers and to make available Federal facilities, tools, equipment, and technical assistance to support and assist volunteer efforts.

If the Ice Age NST is ever to become a fully operational off-road trail, it is absolutely essential that there be a well-organized system to coordinate the participation of volunteer trail organizations and individuals in the development and management of the trail. The basic building block would be local trail clubs working in cooperation with private landowners and public land-managing agencies. Local clubs (hiking, snowmobile, cross-country ski, etc.) and individuals should be made specifically responsible for performing regular inspections of and maintenance on a given section of the trail. The Ice Age Trail Council has taken this approach in its efforts to establish and manage the trail. The National Park Service will assist the Ice Age Trail Council in its role as the focal point for volunteer participation in the Ice Age NST.

The development and management of the existing portions of the Ice Age Trail has been a cooperative venture involving Federal, State, and local agencies, private trail organizations, and many generous private landowners. This cooperative effort has resulted in the construction and maintenance of many miles of marked trails.

In July 1980, the three principal parties involved in developing and managing the existing Ice Age Trail - the Wisconsin Department of Natural Resources, the Ice Age Park and Trail Foundation, and the Ice Age Trail Council - signed a memorandum of agreement to formalize their working relationships.

Congressional establishment of the Ice Age NST assigning administrative responsibility to the Secretary of the Interior, and the subsequent development of this management plan in no way is intended to usurp the validity and/or provisions of the existing agreement. A copy of the agreement is included in this plan in Appendix B.

The provisions of the agreement describe a sharing of responsibilities that reflects to a high degree the types of cooperative relationships envisioned in the Act. The existing agreement, therefore, serves as a good foundation for establishing and formalizing other appropriate working relationships.

Memorandums of agreement are the vehicles authorized in the Act for involving other agencies and organizations in the development and management of a National Scenic Trail. The National Park Service, as overall administrator of the Ice Age NST on behalf of the Secretary of the Interior, will seek to establish such agreements as may be necessary and appropriate for proper development and management of the trail. Agreements should be signed with the three principal parties mentioned above, either individually or collectively, as well as with the Forest Service-USDA and perhaps other local agencies and private organizations. Agreements may also be established as necessary between other public agencies managing portions of the Ice Age NST, between public agencies and cooperating private trail organizations, and between managing authorities and private landowners.

Although the establishment of memorandums of agreement is encouraged in order to clarify and solidify working relationships among trail interests, it is not the intention of the National Park Service to establish a memorandum of agreement with every managing authority responsible for a segment of the Ice Age NST. The relationship with many managing authorities, particularly those responsible for relatively short segments, will be adequately established by the "Affirmation" and "Certification" portions of the "Application for Trail Segment Certification" (see Section VI of this plan). Full memorandums of agreement will usually be established only with agencies and organizations responsible for major segments of the trail or when the working relationship involves more than mere management of a segment.

Appendix B contains a copy of the memorandum of agreement which has been established between the National Park Service and the North Country Trail Association (NCTA) as an example of such an agreement. The NCTA is a private non-profit membership organization founded in 1981 for the purpose of promoting, building, maintaining, and protecting the North Country National Scenic Trail. The National Park Service will seek to establish similar agreements with organizations which are interested in becoming involved in the Ice Age NST.

Any appropriate and legal provision can be included in such agreements. The table in Appendix C outlines the types of provisions that might be included in an agreement. Not all provisions have to be included in every agreement, however. The table also serves to define in a general way the responsibilities of all entities involved in administering, developing, and managing the Ice Age NST.

VI. CERTIFICATION OF OFFICIAL SEGMENTS OF THE ICE AGE NST

Trail segments that follow the route shown on the maps in Appendix F and are managed in accordance with the policies, practices, and responsibilities discussed in Section V.A may be certified as official segments of the Ice Age NST. The certification process calls for a brief application that provides maps and information regarding the exact location of the trail, the agency or organization responsible for management and maintenance of the segment, the policies and practices relating to maintaining the trail, and other information. The format and content of the application are given in the box on page 37. All or part of the information requested in the application can be furnished by the managing authority by submitting and referring to existing plans and documents relating to the trail.

The applications will be reviewed and processed by the Midwest Regional Office of the National Park Service, and a description of the certified segment will be published in the "Federal Register." Whenever an agency or organization responsible for a certified segment finds that a relocation of all or part of the segment is necessary, it shall notify the National Park Service so that a notice of this change can be published in the "Federal Register" and appropriate changes can be made in maps, guides, and brochures. The National Park Service will periodically request from the various managing authorities an update on the status of certified segments.

It must be emphasized that participation in the development and management of the Ice Age NST and certification of trails as segments of the Ice Age NST is highly encouraged but completely voluntary on the part of the managing authority. The National Park Service will not certify any trail as an official segment of the Ice Age NST without the consent of the managing authority.

A. Immediate Certification of Existing Overland Segments

The existing Ice Age Trail makes it possible to immediately certify a number of existing trail segments as official components of the Ice Age NST. These are identified on the maps in Appendix F by a solid red line. Permission to officially designate these segments has been obtained from the responsible managing authorities. Final publication of this Comprehensive Plan for Management and Use and subsequent publication of the trail route in the "Federal Register" will constitute certification of these trails as the first official segments of the Ice Age NST.

B. Certification of Additional Segments of the Ice Age NST

After final publication of this plan, additional trails can be certified as segments of the Ice Age NST through the brief application process mentioned above. The following criteria will be used to evaluate potential Ice Age NST segments:

1. Location

A certified segment should coincide with the Ice Age NST route as shown on the maps in Appendix F or be within its general location. It should also link up with existing or proposed segments. When such segments do not exist

on one or both ends of the segment for which certification is sought, the managing authority should consult the National Park Service prior to submitting the application for certification.

2. Readiness

A segment must exist and be ready for public use prior to its certification and have a degree of permanency to its existance.

3. Availability

A certified segment must be open and available for public use and can include areas restricted to day use only and trails subject to payment of a user fee or subject to other similar restrictions.

4. Length

The length of a certified segment may vary, but certification of isolated segments shorter than 1 mile will not be encouraged.

5. Use

A certified segment may be open to use by the general public only for uses permitted by the National Trails System Act (82 Stat. 919, 16 U.S.C. 1241). See Section VII, "Trail Use and Facilities," for a complete discussion of trail use.

6. Management

A certified segment must be managed in accordance with the broad guidelines in Section V of this plan. Sufficient evidence of this fact should be provided by the managing authority in the application for certification.

C. Side Trails

A number of significant scenic, historic, natural, cultural, and recreational resources are within proximity of the main Ice Age NST route. Access to some of them via existing and potential side trails is recommended. Some would be simple spur trails while others could be alternative routes which connect to the main Ice Age NST in two places. As situations dictate, side trails can be added or eliminated.

Side trails will not be certified as part of the Ice Age NST. Section 6 of the National Trails System Act (16 U.S.C. 1245) provides for side trails as a separate type of trail within the National Trails System. Specific criteria for side trails were not established by the Act. A side trail, therefore, may be any established and marked route which provides additional points of public access to the Ice Age NST or access from the Ice Age NST to nearby points of interest. Unlike the main Ice Age NST route, side trails may be located on roads or the shoulders of roads.

Establishment of side trails is accomplished by designation by either the Secretary of Agriculture, where lands administered by him are involved, or by the Secretary of the Interior. Public or private managing authorities

ICE AGE NATIONAL SCENIC TRAIL

APPLICATION FOR TRAIL SEGMENT CERTIFICATION

I. Name and Description of Managing Authority Responsible for the Segment (Applicant)

II. Location and Description of Segment
Enclose both general location and detailed (such as 15- or 7.5-minute topo) maps showing the segment, campsites and other support facilities, and points of interest. Describe the length of the trail, its general environment including land use and any potential conflicts, the width of land secured for and/or managed for the trail and the type of jurisdiction (ownership, lease, agreement, etc.) the managing authority has over it, and any plans for development of support facilities along the segment. Optional: enclose photographs showing the trail.

III. Use of the Trail
Name and describe the types of uses permitted on the segment.

IV. Management Policies and Practices
Describe or enclose the management policies and/or regulations which apply to public use of the trail. Specify any fees or permits required for use of the trail or support facilities. Describe how maintenance is performed and by whom. Specify how the official Ice Age NST markers will be placed along the trail and what other markers or blazes will be used. Enclose copies of any applicable management plans.

V. Affirmation
I hereby affirm that: (1) I am duly authorized to represent the managing authority named above; (2) the segment is in existence and available for public use regardless of race, color, or creed; (3) the segment is managed in accordance with the Comprehensive Plan for Management and Use of the Ice Age NST; (4) I or another representative of the managing authority will notify the National Park Service if there is a change in the location or status of the segment; (5) if the segment is a non-Federal segment, the official Ice Age NST markers to be supplied by the National Park Service will be posted along the trail and maintained; and (6) the National Park Service will be informed concerning the status of this segment on at least an annual basis.

Signed_____ Date_____

Title_____

Certification
I hereby certify the trail described in this application as a segment of the Ice Age NST. If this segment is located on non-Federal lands, the National Park Service will provide a reasonable and sufficient quantity of the official Ice Age NST marker for the segment.

Signed_____ Date_____

Title_____

responsible for existing or potential side trails to the Ice Age NST should contact the Midwest Regional Office of the National Park Service concerning possible designation of such trails as part of the National Trails System.

The potential for developing side trails should be explored and considered as an element of implementing this plan. Of particular interest is identifying and developing side trails which would connect additional Ice Age Reserve units. Two additional units can be connected. These are Campbellsport Drumlins and Horicon Marsh. The Mill Bluff Unit is some distance from the route of the Ice Age NST making it rather impractical to develop a side trail to it.

VII. TRAIL USE AND FACILITIES

A. Types of Use

The existing Ice Age Trail was established principally as a hiking trail. Most of the hiking takes place primarily from spring into fall. The majority of the hikers are short distance users, spending only a few hours on the trail and utilizing primarily those segments located within public areas. Very few hike long portions of the trail and even fewer hike its entire length. Other uses permitted on certain segments of the trail include bicycling, snowmobiling, ski touring, and horseback riding.

The type of use which will occur on the Ice Age NST is expected to be no different than that presently occurring on the existing trail. National Scenic Trails are intended to be open to travel on foot for their entire length and, accordingly, all certified segments shall be open to hiking and backpacking. These will continue to be the principal uses of the trail.

Expanded use of the trail for ski touring, horseback riding, and bicycling is expected to take place and additional segments may need to be developed to accommodate these uses. Multiple use of the trail for these activities should be considered. The extent to which these and other nonmotorized uses, such as jogging and snowshoeing, occur will be determined by the policies and desires of the various managing authorities responsible for segments of the Ice Age NST.

Although the use of motorized vehicles by the general public along any segment of a National Scenic Trail is prohibited by law, the Congress has specifically provided that some portions of the Ice Age NST could be open to snowmobile use by the general public. The pertinent portions of the National Trails System Act are quoted in Section V.A.6 of this plan. The language is permissive and does not mean that the entire Ice Age NST will be open to snowmobiling.

The rationale for this exception for snowobiling is based on the fact that the Ice Age NST lies within the Nation's snowbelt where snowmobiling is a major winter activity. Some of the overland (off-road) portions of the existing trail which will become segments of the Ice Age NST are designated for snowmobile use in winter by the responsible managing authority. The primary purpose of this legislative exception, therefore, is to permit these existing multiple use trails to be incorporated into the official Ice Age NST route. However, it would allow future segments of trail developed for the Ice Age NST to also be open to snowmobiling if, as specified in the law, it is deemed appropriate by the managing authority and the Secretary of the Interior. The following considerations should be taken into account when determining whether snowmobiling is appropriate on a given segment of the Ice Age NST.

- Is the segment designed to safely accommodate snowmobiling?
- Because of the great distances that can be traveled on a snowmobile, is the segment long enough to provide an adequate snowmobiling experience and/or are adjacent segments also open to snowmobile use?

Cross-country skiing is a popular winter activity on some segments of the Ice Age NST.

Photo by R. W. Cromer

- Will snowmobile use create a problem in regard to the safety of other non-snowmobile users to which the trail might also be open?

The maps in Appendix F identify the trail activities in addition to hiking which are permitted on the various segments.

B. Amount of Use

It is very difficult, if not impossible, to estimate the projected use of a trail as long and diverse as the Ice Age NST. However, in looking at the potential level of use of the trail, use figures from three public areas through which the Ice Age Trail passes are available and presented below. The three areas are: Chequamegon National Forest, Kettle Moraine State Forest, and Devil's Lake State Park. These three areas contain developed recreation facilities and attract visitors because of these facilities and other resources found within the areas. As a result, segments of the Ice Age Trail located in these areas no doubt receive greater use than trail segments outside these areas. At the present time, figures are not available for trail segments located on non-public lands.

Estimated Number of Trail Users for 1981

	Hiking	Horseback Riding	Ski Touring
Chequamegon National Forest	2,800	300	400
Kettle Moraine State Forest	6,500	-	6,000
Devil's Lake State Park	4,400	-	3,600
	13,700	300	10,000

Based upon patterns of use of other long-distance trails, such as the Appalachian National Scenic Trail, it is clear that Ice Age NST segments located within or near populated areas will receive more use than those in remote areas. As development of the trail occurs and it becomes better known, increased use can be expected. However, as additional segments are developed, pressure on popular segments may be reduced as use becomes dispersed to these new segments.

C. Carrying Capacity

The concept of carrying capacity is difficult to apply to a trail as long and with such a diversity of landscapes and managing authorities as the Ice Age NST. However, carrying capacity does provide a useful starting point for considering and managing use and potential overuse of the trail. One definition of carrying capacity is: "The amount, kind, and distribution of use that can occur without leading to unacceptable impacts on either the physical/biological resource or the available experience."

The concept of carrying capacity is best understood by dividing it into its two components. One is the physical and biological capacity of the area to sustain use. The other is the "social carrying capacity," i.e., the ability to sustain numbers of users without unacceptable degradation of the trail experience (be that an expectation for solitude or for socializing with

others). These two carrying capacities provide a conceptual framework for monitoring the trail resource and planning for its management.

Presently the Ice Age Trail within the three public areas for which use figures are given above shows no significant deterioration as a result of the number of people utilizing it. The same is true for segments on private lands.

The point at which the trail reaches its capacity to carry people without diminishing their experience or causing deterioration to the resource depends on several factors. They include the use itself and the expectations of the user, topography, stability of the tread surface, and vegetative cover. No one standard can be set for the entire route.

It will be necessary for the managing authority responsible for a given trail segment to monitor levels of use and the condition of the trail. If it is found that there are adverse effects on the condition of the trail, the manager may need to limit or prohibit an activity on a particular segment of trail, or relocate the trail.

D. User Facilities

Facilities associated with the Ice Age NST are found primarily within existing public areas through which the trail passes. These include open shelters, campsites, water sources, signs, toilets, and trail heads. Where the trail crosses private lands, few, if any, user facilities are presently found along the trail. Where the trail passes close to towns and communities, facilities such as grocery stores, restaurants, and lodging are accessible to trail users. Most of the trail route, however, is located away from populated areas making such facilities less available.

In planning for additional facilities such as shelters, water sources, toilets, campsites, parking areas, and trail heads, several factors must be considered. Many people will utilize the trail for only short distances or periods of time. The vast majority of these users will hike or ski the trail for several hours while a lesser number may utilize it for a weekend, staying out overnight. Still fewer will go out for up to a week at a time. As the trail becomes better known and better established, however, more users will stay out for extended periods and some will want to hike its entire length. Appropriate support facilities should be developed accordingly.

Another factor to consider regarding the need for support facilities is the proximity of the trail to populous areas. Near these areas, greater use of the trail will occur than in rural or remote areas. More user facilities will be required, therefore, along these segments to accommodate this higher level of use.

An important consideration is adequate and safe off-road parking to facilitate trail use. Roadside parking can be hazardous for both road and trail users. Off-road parking should be planned and accommodated whenever possible at all popular points of departure.

Campsites and/or shelters, toilets, and water should be provided at appropriate locations in all public areas associated with the trail. An

important consideration is the distance between these areas because it is less likely that such user facilities will be available on trail segments which traverse private lands. Whenever possible, user facilities should be provided through cooperation with private landowners.

Another factor to be considered in spacing user facilities is terrain. In areas of rugged terrain, the hiker/backpacker will cover shorter distances in a day and, therefore, will require facilities spaced at shorter intervals.

E. Interpretation/Education

The Ice Age NST provides numerous opportunities to interpret the Wisconsin glaciation. This can be accomplished through wayside exhibits. These exhibits can vary from one or more panels providing detailed information to a small sign with a few sentences and/or diagrams about the object or scene.

To ensure that interpretive displays are properly located, coordinated with respect to the information they provide, and uniform in style, an interpretive plan is needed. This should be developed in two steps. The first would be a conceptual interpretive plan for the overall trail. This would be followed by a detailed plan dealing with specific interpretation for each area or trail segment. Interpretation along the trail should supplement that which is provided at the Ice Age National Scientific Reserve units.

The State of Wisconsin, in cooperation with the National Park Service, should assume the responsibility for developing a plan for interpretation along the Ice Age NST. Where public lands are involved, the appropriate Government authority would be responsible for providing actual interpretation based on the plans developed. Where private lands are involved, interpretation should be accomplished by the Ice Age Trail Council in cooperation with landowners.

As a minimum, interpretive information which provides facts about the trail should be located at each trail head; i.e., length of trail segment, facilities available, and a brief description of what might be seen. All interpretation/information devices should be designed to discourage vandalism.

VIII. MARKING PLAN

A. Marker Design

The Secretary of the Interior is directed under Section 7(c) of the National Trails System Act (16 U.S.C. 1246(c)) to establish a uniform marker for the Ice Age NST ". . . including thereon an appropriate and distinctive symbol . . . ." It also specifies requirements for the erection and maintenance of markers on Federal and non-Federal lands.

The design and color scheme for the official Ice Age NST marker appears on the frontispiece of this document. The marker conforms exactly to the National Trails System marker design. It portrays the State of Wisconsin as draped in glacial ice (during the Wisconsin stage of glaciation) to the north contrasted against green in the south to represent the verdant land. The Ice Age NST is represented by footprints following the terminal and interlobate moraines of the Wisconsin Glacier across the State. Adoption of the design was recommended by the Ice Age National Scenic Trail Advisory Council. The National Park Service will take the necessary action to register the marker with the U.S. Patent and Trademark Office.

B. Marking Guidelines

The official marker will be erected and maintained along all certified trail segments. The marker will be available in two standard sizes: a 9-inch size for use primarily at trail heads and a smaller 3 1/2-inch size for use as periodic route confirmation signs. Either size, as appropriate and according to the desire of the managing authority, may be used at trail intersections, campgrounds, and interpretive sites and displays. The markers should be erected in accordance with the standard trail marking practices of the managing authority responsible for the segment. Mounting on posts of various sizes and materials or other methods of placement may be used.

It is not desirable nor cost effective to use the official marker as the sole marker along the trail. Other types of markers and blazes which are not as costly, not as visually obtrusive, nor as prone to vandalism should be used between points where the official marker has been placed. A standard 2- by 6-inch vertical rectangular paint blaze or 5- by 7-inch elongated diamond blaze could be used. Managing authorities should be guided by their own existing trail marking standards and practices in deciding what type(s) of marking will be used to supplement the official marker. Managing authorities which have not established trail marking practices might consider using the suggested guidelines outlined on page 47 which are patterned after those used by the Eastern Region of the Forest Service-USDA for marking the North Country National Scenic Trail.

The National Park Service realizes that various public agencies and private organizations which manage trails that will become a part of the Ice Age NST route have established various methods of marking these trails. Blazes and other markers are of various shapes, sizes, and colors. At this point in time, there is no intention of trying to standardize marking other than to require posting of the official marker at appropriate points such as trail

heads, trail junctions, etc., along certified segments and to emphasize that all marking of the Ice Age NST should be of a permanent nature. No change to a single color or shape of supplemental blazes will be mandated. If the official marker is maintained at necessary points along certified segments, there should be no confusion over the route of the Ice Age NST despite various types and colors of supplemental markings. If, in the future, participating managing authorities or the Ice Age National Scenic Trail Advisory Council indicate a need for more standardization, the National Park Service will consider issuing additional guidelines.

The purpose of this flexible approach to marking is to permit managing authorities to maintain individual identity of their trails if they wish to do so. This plan is not asking managing authorities to rename their existing trails. Existing trails may continue to have their own identity and, in addition, be recognized as "the route of" the Ice Age NST. Therefore, where the Ice Age NST follows an existing trail which has its own distinct name and/or symbol, both markers may be used along the trail. Placement of both markers on a single post is suggested as the simplest approach.

Side trails which have been officially designated by the Secretary of Agriculture or the Secretary of the Interior shall be marked as components of the National Trails System.

Recognized "Ice Age Trail Connecting Road Segments," as described in Sections III.C and V.A.1 and shown on the maps in Appendix F, should be clearly marked by the managing authority which wishes to maintain such a route using any means deemed suitable and appropriate--blazes and signs of various sizes, colors, and materials; posts; etc. The official Ice Age NST marker, however, shall not be used to mark any Ice Age Trail Connecting Road Segment. Also, Wisconsin Department of Transportation policy does not permit trail identification or marking on the State Trunk Highway System.

C. Responsibilities

In compliance with Section 7(c) of the National Trails System Act, markers on federally administered trail segments shall be erected and maintained by the Federal Agency administering that segment in accordance with this marking plan. The National Park Service will provide markers for certified segments on non-Federal lands. The responsible managing authority will be required to place and maintain them in accordance with this marking plan.

The National Park Service will provide for the production of a sufficient quantity of the 3 1/2- and 9-inch sizes of the official Ice Age NST marker.

Suggested Marking Guidelines
Ice Age National Scenic Trail

Placement and Support

Signs and markers can be mounted on posts approximately 4 feet above tread level on non-snow segments and 40 inches above average maximum snow level on snow (winter use) segments. Posts should be placed a sufficient distance off the edge of the trail to minimize risk of damage from or to traffic. Reassurance markers (see below) may be installed on trees.

Trail Head Information Signs and On-Trail Destination Signs

These should be rustic routed wood signs which provide direction and distance information for guidance to named destinations. The 3 1/2- or 9-inch official National Scenic Trail (NST) marker can be incorporated into the signboard. The names and/or marker symbols of other established, formally named and recognized, trails coinciding in location with the Ice Age NST route could also be incorporated into such signs.

Reassurance Markers

These are on-trail markers which reassure travelers that they are on the trail. They should be used only where such reassurance is needed (trail is not self-defining under all conditions in which normal use occurs). A 2- by 6-inch rectangular blazer, either grey-white or blue, could be used as a reassurance marker. The official NST marker would normally not be used as a reassurance marker. Manufactured blazers should generally be mounted on trees at eye level with rust-resistent nails. Painted blazers or rock cairns may be used where warranted. Painted reassurance blazers should be used when theft of mounted blazers becomes a problem or the subtle difference in appearance is significant in meeting visual quality objectives. Painting on rocks is an effective alternative where tree or post supports are not available or are impractical to provide. Ax blazing should never be used.

Route Confirmation Markers

These are small markers identifying the trail by name and/or symbol which are placed along the trail a short distance after beginning points or crossings of roads or other trails for confirmation in situations where confusion could result from vandalism of destination signs at termini or junctions. The 3 1/2-inch official marker should be the only type of confirmation marker used along the Ice Age NST.

In addition to confirmation markers, the 3 1/2-inch official marker could be mounted or branded on 4- by 4-inch wood posts installed at 3/4 to 1 mile intervals for "trail signature" purposes. When the distance between junctions and/or termini is only 3/4 to 1 1/2 miles, installation of posts should be limited to one post at the approximate midpoint. No marker posts should be used on segments shorter than 3/4 mile. Each marker post should be 7 feet in length, set 2 feet 6 inches in the ground, with hip-cut top and spiked crosspiece at the bottom to resist removal. The top of the brand or mounted marker should be 1/4 inch below the cut line at the top of the post.

IX. IMPLEMENTING THE PLAN

Previous sections of this Comprehensive Plan for Management and Use of the Ice Age NST have identified the route and provided the framework of policies and procedures for developing and managing a 1,000-mile component of the National Trails System. Implementation of the plan requires that certain actions be taken which will lead to a fully developed and operational Ice Age NST. This section outlines those actions.

The National Park Service, on behalf of the Secretary of the Interior, is responsible for taking those actions which relate to overall administration of the trail as part of the National Park System. Other Federal, State, local, and private interests must assume responsibility for taking those actions which relate to development and management of the trail.

Those actions which logically should be initiated first or which are in most urgent need of accomplishment should receive priority. On this basis, the actions outlined below have been grouped into two broad categories.

A. Actions to Be Taken in the Immediate Future

Implementation of this plan requires that the following actions be taken by the National Park Service in the immediate future:

1. Publish the route of the Ice Age NST in the "Federal Register" as required by Section 7(a)(2) of the National Trails System Act (16 U.S.C. 1246(a)(2)). Upon publication, those trail segments identified on the maps as "Existing Trail--Certified NST" will become the first official segments of the Ice Age NST.

2. Appoint a qualified person within the National Park Service to function as administrator of the Ice Age NST. Immediate appointment of an administrator is important so that no time will be lost in beginning to implement this Comprehensive Plan for Management and Use. He or she would work closely with the Wisconsin Department of Natural Resources and the Ice Age Trail Council.

3. Prepare funding requests to cover (a) the annual cost of a trail administrator and support services, (b) the costs of marking the trail as described in Section VIII of this plan, (c) the costs of publishing and distributing to the public a pamphlet or brochure about the Ice Age NST, (d) the annual operating costs of the Ice Age National Scenic Trail Advisory Council, and (e) the costs of providing technical assistance to managing authorities.

4. Prepare for publication and distribution a pamphlet or brochure about the Ice Age NST showing the general route of the trail and associated scenic, historic, cultural, natural, and recreational features. The purpose of the brochure would be twofold: (a) provide general information about the Ice Age NST and (b) help generate increased involvement by public and private interests in developing and managing the trail.

5. Execute a memorandum of agreement between the National Park Service and the Wisconsin Department of Natural Resources formally setting forth the role of the agencies with respect to the planning, implementation, marking, and management of the non-Federal trail segments. Also, execute a similar Memorandum of Understanding with the Forest Service-USDA. Provisions which might be included in such agreements are outlined in Appendix C.

6. Register the official Ice Age NST marker with the U.S. Patent and Trademark Office and arrange for production of a sufficient quantity to meet present and future needs.

Implementation of this plan requires that the following actions be taken by managing authorities and other cooperating public and private interests in the immediate future:

1. Managing authorities responsible for segments which are immediately certified through publication of this plan should furnish detailed maps and other information about each segment to the Midwest Regional Office of the National Park Service so that official records of the trail route can be established. Non-Federal managing authorities should also request a specific number of each size of the official Ice Age NST marker needed for each segment.

2. Managing authorities responsible for other existing trails which could be incorporated into the official Ice Age NST route after its initial publication in the "Federal Register" should apply to the National Park Service for certification.

3. The Wisconsin Department of Natural Resources, the Ice Age Trail Council, and the Ice Age Park and Trail Foundation should reaffirm their arrangements for managing the Ice Age NST consistent with this management plan.

4. The Wisconsin Department of Natural Resources and the Ice Age Trail Council, with assistance from the National Park Service, should prepare a slide show about the Ice Age NST to aid in promoting interest and involvement in establishing and maintaining the Ice Age NST.

5. The Wisconsin Department of Natural Resources should include in its annual budget requests sufficient funds to carry out its responsibilities.

B. Actions to Be Taken Over the Long Term

Implementation of this plan requires that the various public and private interests concerned with the trail take the following actions which relate to the administration, development, and management of the Ice Age NST over the long term:

1. Detailed planning for the location and construction of new trail segments needed to make the Ice Age NST a continuous off-road trail as identified in this plan should begin as soon as possible as a cooperative effort between the Ice Age Trail Council, Wisconsin Department of Natural Resources, and the National Park Service.

2. The National Park Service should establish written agreements, as the need arises, with local and private interests covering the planning, development, and management of trail segments. All public and private interests should establish agreements with one another as the need arises to formalize working relationships. Provisions which might be included in such agreements are outlined in Appendix C.

3. All cooperating public jurisdictions and private interests should program, budget, and/or appropriate the funds necessary to develop and manage certified segments of the Ice Age NST and carry out any responsibilities specified in written agreements.

4. The Ice Age National Scenic Trail Advisory Council should meet semiannually during its 10-year period of operation to review the status of and advise the National Park Service on trail implementation, administration, and maintenance.

5. The National Park Service will administer a program of technical assistance covering all aspects of trail planning, development, and management, such as construction standards, methods of securing land for the trail, volunteer involvement, interpretation, etc.

6. The National Park Service will work closely with and monitor the efforts of all managing authorities involved in developing and managing segments of the Ice Age NST.

7. The National Park Service will maintain accurate map records of the official route of the Ice Age NST and publish, from time-to-time, notices of new segments or changes in existing segments in the "Federal Register."

8. Private trail organizations, individually or collectively, should take the lead in publishing guide books and sets of detailed maps for the trail. The National Park Service will actively promote and assist in the preparation of such materials and will function as a primary source of information for those developing maps and guides.

9. The Wisconsin Department of Natural Resources, with assistance from the National Park Service, should assume responsibility for preparing an interpretive plan for the trail.

APPENDIX A

ICE AGE NST LEGISLATION

Public Law 96-370
96th Congress

An Act

Oct. 3, 1980
[H.R. 7825]

To establish the Ice Age National Scenic Trail, and for other purposes.

Ice Age National Scenic Trail, establishment.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the National Trails System Act (82 Stat. 919; 16 U.S.C. 1241), as amended, is further amended as follows:

16 USC 1244.

(a) Section 5(a) is amended by adding the following new paragraph at the end thereof:

"(10) The Ice Age National Scenic Trail, a trail of approximately one thousand miles, extending from Door County, Wisconsin, to Interstate Park in Saint Croix County, Wisconsin, generally following the route described in "On the Trail of the Ice Age—A Hiker's and Biker's Guide to Wisconsin's Ice Age National Scientific Reserve and Trail", by Henry S. Reuss, Member of Congress, dated 1980. The guide and maps shall be on file and available for public inspection in the Office of the Director, National Park Service, Washington, District of Columbia. Overall administration of the trail shall be the responsibility of the Secretary of the Interior pursuant to section 5(d) of this Act. The State of Wisconsin, in consultation with the Secretary of the Interior, may, subject to the approval of the Secretary, prepare a plan for the management of the trail which shall be deemed to meet the requirements of section 5(e) of this Act. Notwithstanding the provisions of section 7(c), snowmobile use may be permitted on segments of the Ice Age National Scenic Trail where deemed appropriate by the Secretary and the managing authority responsible for the segment.".

94 Stat. 68.
16 USC 1249.

(b) Section 10(c) is amended by changing "(7), and (8):" to "(7), (8), (9), and (10):", and by inserting "The Ice Age National Scenic Trail," after the phrase "North Country National Scenic Trail,".

Authorizations, effective date.
16 USC 1249 note.

SEC. 2. Authorizations of moneys to be appropriated under this Act shall be effective on October 1, 1981. Notwithstanding any other provision of this Act, authority to enter into contracts, to incur obligations, or to make payments under this Act shall be effective only to the extent, and in such amounts, as are provided in advance in appropriation Acts.

Approved October 3, 1980.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 96-1314 (Comm. on Interior and Insular Affairs).
CONGRESSIONAL RECORD, Vol. 126 (1980):
Sept. 16, considered and passed House.
Sept. 18, considered and passed Senate.

79-139 O - 80 (200)

APPENDIX B

MEMORANDUMS OF AGREEMENT

ICE AGE TRAIL MEMORANDUM OF AGREEMENT

The purpose of this memorandum of agreement is to outline the responsibilities of the Wisconsin Department of Natural Resources, the Ice Age Park and Trail Foundation and the Ice Age Council regarding the Ice Age Trail.

The Ice Age National Scientific Reserve was authorized by PL-88-655 in October, 1964. PL-91-483 which provides the basis of financing the Reserve was signed in October, 1970. A subsequent cooperative agreement between the State of Wisconsin and the National Park Service in September, 1972 stated that both agencies should jointly assist the Ice Age Park and Trail Foundation in a study of the proposed Ice Age Trail in Wisconsin.

The 1,000 mile Ice Age Trail serves as a link between most of the nine units of the Reserve and other glacially significant areas as it follows the terminal moraines through Wisconsin. The Ice Age Trail is now partially operational under the auspices of the Ice Age Trail Council and the Foundation. The Ice Age Trail crosses federal, state, county, town, and other governmental lands, as well as private lands.

The Foundation is a private, non-profit corporation that originally sponsored the Ice Age Trail. The Foundation raises money and provides guidance for the Trail project. The Council is currently comprised of eleven chapters, each responsible for the location, maintenance, and care of specific Trail segments. Council members work with landowners to secure permission to locate the Trail and arrange volunteer labor for maintenance of the Trail.

The Wisconsin Department of Natural Resources, the Ice Age Park and Trail Foundation of Wisconsin, Inc., and the Ice Age Trail Council agree as follows:

1. The Department, the Foundation, and the Council will cooperate in the completion and maintenance of the Ice Age Trail, as defined in this agreement.

2. The Department shall have responsibility for laying out, designing, constructing, and maintaining the Trail over Department lands. For the purposes of this agreement, county forest lands shall <u>not</u> be considered "Department lands."

3. The Council shall have responsibility for constructing and maintaining the Trail over private lands.

4. The Department and the Council shall have joint responsibility to advise and provide guidance to other governmental units in laying out, designing, constructing, and maintaining the Trail over other public lands. For the purposes of this agreement, county forest lands shall be considered "other public lands."

5. As an additional part of its obligations under this agreement, the Department will:

   a. Provide leadership and coordination for the Ice Age Trail.

   b. Appoint various Department personnel along the route of the Ice Age Trail to work with the Council and its chapters on specified segments of the Trail.

   c. Advise the Council and Foundation on Trail layout, design, construction, and maintenance for those parts of the Trail they are responsible for.

   d. Provide Trail easement and other right-of-way acquisition expertise.

   e. Provide Trail mapping expertise.

   f. Provide Trail publications expertise.

   g. Provide Trail publicity and public relations expertise.

   h. Make application to secure National Recreational Trail designation for the Ice Age Trail in Wisconsin.

6. Except as is authorized by the Legislature, the Natural Resources Board and the Department have no obligation to:

   a. Acquire any lands for the Trail outside other authorized Department projects.

   b. Construct or maintain any portion of the Trail over non-Department lands.

7. As an additional part of its obligations under this agreement, the Council and its various local chapters will work with the advice of the Department in:

   a. Laying out, designing, constructing, and maintaining the Trail.

   b. Securing Trail easements and other rights-of-way.

   c. Mapping the Trail.

   d. Publishing Trail maps and other Trail information.

   e. Providing Trail publicity and public relations.

8. As an additional part of its obligations under this agreement, the Foundation will use its best efforts to provide such non-public funds as may be needed to carry out this agreement.

9. The parties agree to meet annually on a date to be mutually agreed upon to discuss the workability of this agreement. "Either party may cancel this agreement upon three months written notice to the other party."

10. In connection with the performance of work under this agreement, the Council agrees not to discriminate against any employe, applicant for employment member, volunteer or trail user because of age, race, religion, color, handicap, sex, physical condition, developmental disability as defined in s. 51.01(5), Stats., or national origin. This provision shall include, but not be limited to, the following: employment, up-grading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. The Council further agrees to take affirmative action to ensure equal employment opportunities. The Council agrees to post in a conspicuous place available for employes and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the nondiscrimination clause.

11. Should the Council at any time have paid employes working on the Ice Age Trail on Department lands, they shall furnish proof of Worker's Compensation coverage in the form of a Certificate of Insurance indicating such for these individuals. The insurance policy shall contain a provision by which the insurer agrees to notify the Department upon any lapse or change in coverage.

    Failure to satisfy the provisions of this paragraph will result in the voiding of the agreement.

APPROVED:

Norman C Huth — 7-26-80

Norman C. Huth, President
Ice Age Park and Trail
Foundation of Wisconsin, Inc.

Julius J Werner — 7-13-80

Julius J. Werner, President
Ice Age Trail Council

Cynthia D. Earl — 7/28/80

Anthony S. Earl, Secretary
Department of Natural Resources

Date

MEMORANDUM OF AGREEMENT

BETWEEN THE NATIONAL PARK SERVICE

AND THE NORTH COUNTRY TRAIL ASSOCIATION

CONCERNING THE NORTH COUNTRY NATIONAL SCENIC TRAIL

THIS AGREEMENT, made and entered into this 15th day of May, 1982, by and between the National Park Service hereinafter referred to as the "NPS" and the North Country Trail Association hereinafter referred to as the "NCTA," in furtherance of the National Trails System Act of October 2, 1968, (82 Stat. 919; 16 U.S.C. 1241).

WHEREAS, the aforesaid Act provides in 16 U.S.C. 1244(a)(8) that the North Country National Scenic Trail shall be administered by the Secretary of the Interior, and

WHEREAS, the said Act provides further that when determined to be in the public interest the Secretary of the Interior charged with administration of a National Scenic Trail may enter into written cooperative agreements with private organizations and others to operate, develop, and maintain any portion of a National Scenic Trail either within or outside a federally administered area, and

WHEREAS, establishment of the North Country National Scenic Trail was conceived on the premise of a cooperative venture between all levels of Government and the private sector, and

WHEREAS, significant portions of the designated North Country National Scenic Trail hereinafter referred to as the "Trail" traverse substantial amounts of privately-owned land, and

WHEREAS, the NCTA, founded in 1981, is a private, nonprofit corporation composed of individual members and affiliated trail organizations for the purpose of promoting, building, maintaining, and protecting the Trail, and

WHEREAS, it is the mutual desire of the NPS and the NCTA to enter into an Agreement whereby the latter, through its members and affiliated organizations, will participate in the planning, development, operation, and maintenance of the Trail, and

WHEREAS, the Secretary of the Interior has determined it to be in the public interest to enter into such Agreement.

NOW, THEREFORE, in consideration of the above, the parties hereto mutually agree as follows:

a. The NCTA and the NPS will coordinate all of their activities and programs related to the Trail to assure that the efforts of each party will complement those of the other. The parties

will meet periodically for the purpose of discussing activities and programs and to determine ways of enhancing the significance of the Trail and encouraging use thereof.

b. Initial mapping of the Trail and selection of rights-of-way will be a cooperative venture involving NCTA and NPS and concerned Federal, State, and local agencies and private organizations. The NPS and the NCTA will cooperate in promoting, identifying, and establishing future segments of the Trail.

c. The NPS will prepare a Comprehensive Plan for Management and Use of the Trail and any needed guidelines for the development, maintenance, interpretation, and overall management of the Trail.

d. The NPS, having overall administrative responsibility for the Trail, will maintain contact with all levels of Government to coordinate public sector development of the Trail and will be responsible for coordinating all planning and development efforts for the Trail across the seven States involved.

e. The NCTA will be a principal contact and coordinator with private interests and will actively promote and coordinate efforts by appropriate volunteer organizations to develop and maintain segments of the Trail. Further, the NCTA will develop its own volunteer force to develop and maintain the Trail, working in cooperation with involved trail clubs and organizations, the NPS and other concerned Federal, State, and local land managing agencies.

f. The NCTA will undertake, and encourage its affiliate organizations to undertake the acquisition of interests in lands by donation or otherwise (through easements, restrictive convenants, etc.), or to negotiate written cooperative agreements for segments of the Trail that traverse private landholdings, and establish segments thereon. Further, the NCTA will encourage the States, local governments, and other land administering agencies, (1) to obtain written cooperative agreements with landowners and others that will assure public recreational use of the Trail, or (2) to acquire the lands or interests in land to be utilized as segments of the Trail. The NPS will assist the NCTA in these matters by providing advisory and technical assistance as needed, within the limits of appropriated funds and existing authority.

g. All efforts of the NCTA and its affiliate organizations to develop, operate, and maintain any segments of the Trail and related facilities throughout its length will be consistent with the Act, applicable regulations, the Comprehensive Plan for Management and Use of the Trail, and approved land use and development plans of the responsible management agencies, and subject to approval by NPS.

h. For segments of the Trail not on public lands, the NCTA, through its members and affiliate organizations, agrees to promote and assist in the certification by NPS of such segments, and cooperate in the erection and maintenance of the uniform marker adopted for the Trail. The certification of segments on private lands and subsequent erection and maintenance of markers shall be done in accordance with procedures and standards established or approved by NPS and shall only occur after receiving written approval by the sponsoring trail club or organization. For such certified segments the NPS will furnish an initial set of official trail markers, and the NCTA will be responsible for notifying the NPS of the closing or rerouting of such segments.

i. Both the NCTA and the NPS will be concerned with general publicity and public relations regarding the Trail, but development and distribution of detailed maps and guidebooks for the Trail will be the prerogative of the NCTA in cooperation with other trail organizations provided such organizations are agreeable.

Nothing in this Agreement shall affect or interfere with fulfillment of the obligations or exercise of the authority of the NPS and any other Federal Agency to manage the lands along the Trail route (within the boundaries of areas they administer) and the programs under their jurisdiction in accordance with their basic land management responsibilities.

No member of or Delegate to Congress shall be admitted to any share or part of this Agreement or to any benefit that may arise therefrom.

During the performance of this Agreement, the cooperators agree to abide by the terms of Executive Order 11246 on nondiscrimination and will not discriminate against any person because of race, color, religion, sex, or national origin. The cooperators will take affirmative action to ensure that applicants are employed without regard to their race, color, religion, sex, or national origin.

This Agreement will exist for a period of no longer than 5 years at which time all parties to the Agreement will evaluate its benefits and determine if the Agreement should be reaffirmed. It may be terminated or revised upon 60 days advance written notice given by one of the parties to the other, or it may be terminated earlier by mutual consent of both parties.

The obligation of the NPS to perform the responsibilities specified in this Agreement is contingent upon the availability of appropriated funds. No legal liability on the part of the NPS to carry out such responsibilities shall arise unless and until appropriated funds are made available to cover the expenses associated with performing the responsibilities specified herein.

IN WITNESS WHEREOF, the parties hereto have subscribed their names and affixed their seals the day, month, and year aforesaid.

Russell E. Dickenson — 4/29/82

Russell E. Dickenson
Director, National Park Service
U.S. Department of the Interior

Date

Lance Feild — 5/15/82

Lance Feild
President, North Country
Trail Association

Date

APPENDIX C

POSSIBLE PROVISIONS OF MEMORANDUMS OF AGREEMENT

ICE AGE NATIONAL SCENIC TRAIL
POSSIBLE PROVISIONS OF MEMORANDUMS OF AGREEMENT OR UNDERSTANDING

Parties to Agreements		What the Parties Could Agree to Do			
		Marking the Trail	Developing and Managing the Trail	Development of Support Facilities	Provide Access and Interpretation
FEDERAL	Interior National Park Service	Provide each non-Federal managing authority with a set of official markers for its segment of the trail to erect in accordance with the marking program in the Comprehensive Plan.	Establish a management entity in the NPS Midwest Regional Office for overall trail administration and coordination activities.	Assist the State as related to arrangements for developing Ice Age National Scientific Reserve units.	Assist the State in preparing an interpretive plan for the trail.
	Other Federal (Forest Service-USDA)	Erect and maintain markers on segments within Federal areas in accordance with the marking program in the Comprehensive Plan.	Develop, manage, protect, and maintain Federal segments in accordance with the Comprehensive Plan.	Develop, operate, and maintain support facilities as recommended by the Comprehensive Plan at each Agency's expense.	Provide appropriate public access and interpretive opportunities for Federal segments at each Agency's expense.
State Agencies and Local Governments		Erect and maintain markers on certified segments in accordance with the marking program in the Comprehensive Plan.	Develop, manage, protect, and maintain State or locally owned certified segments in accordance with the Comprehensive Plan.	Same as "Other Federal" above.	Same as for "Other Federal" above, for State and locally managed certified segments.
Private Organizations, Corporations, and Individuals		Same as "State" above.	Same as "State" above, for privately managed certified segments.	Same as "Other Federal" above, with private funds or government assistance, if available.	Same as for "State" above, for privately managed certified segments with private funds.

ICE AGE NATIONAL SCENIC TRAIL
POSSIBLE PROVISIONS OF MEMORANDUMS OF AGREEMENT OR UNDERSTANDING

Parties to Agreements		What the Parties Could Agree to Do			
		Consultation with Advisory Council	Right-of-Way Agreements with Private Landowners	Land Exchange or Acquisition	Rules and Regulations
F E D E R A L	Interior National Park Service	Consult with Council on matters relating to the trail including transmittal of concerns from managing authorities and returning Council's advice to managing authorities.	Outside Federal areas consider initiating agreements with owners of critical trail links where State and local governments fail to do so. Authority is Section 7(e) of the Act.	N/A	Promulgate such overall regulations as may be necessary for proper administration and protection of the trail after consulting with affected interests.
	Other Federal (Forest Service-USDA)	Convey trail management concerns to NPS for transmittal to Advisory Council.	Seek agreements with owners of high potential non-Federal lands within Federal areas needed for the trail, pursuant to Section 7(d) of the Act.	Consider acquisition of any needed private lands within the exterior boundaries of Federal areas where agreements cannot be consummated, pursuant to Sections 7(d) and 10(c) of the Act.	Promulgate rules and regulations as may be necessary for managed segments, consistent with overall trail regulations and the Comprehensive Plan.
State Agencies and Local Governments		Same as "Other Federal" above.	Seek agreements with owners of private lands needed for State and locally managed segments which may become certified, pursuant to Section 7(e) of the Act.	Consider acquisition of private lands where agreements cannot be consummated. State funds, including Land and Water Conservation Fund monies, may be used for acquisition. Authority is Section 7(e) of the Act.	Same as "Other Federal" above.
Private Organizations, Corporations, and Individuals		Same as "Other Federal" above.	Seek agreements with landowners to establish segments which subsequently may be certified.	Consider acquiring lands for segments which subsequently may be certified.	Same as "Other Federal" above.

ICE AGE NATIONAL SCENIC TRAIL
POSSIBLE PROVISIONS OF MEMORANDUMS OF AGREEMENT OR UNDERSTANDING

Parties to Agreements		What the Parties Could Agree to Do			
		Technical Assistance	Funding	Certification as Official Segments	Additional Legislative Authority
FEDERAL	Interior National Park Service	Upon request and as funds permit, provide technical assistance to managing authorities for planning access, protection, facilities, interpretation, and establishment of the trail.	Fund initial set of markers for entire trail. Seek adequate appropriations to carry out overall administrative and technical assistance responsibilities.	Process and take action on requests from Federal, State, local, or private interests for certification of segments as the route of the trail.	Through legislative liaison, present issues raised by trail interests and the Advisory Council to Congress through the proper channels.
	Other Federal (Forest Service-USDA)	Request technical assistance as outlined above from NPS and other sources, as needed.	Seek adequate appropriations to carry out responsibility for developing and managing Federal segments, pursuant to Section 10 (c) of the Act.	Request certification of segments developed and managed in accordance with the Comprehensive Plan.	N/A
State Agencies and Local Governments		Same as "Other Federal" above. May provide technical assistance to Federal and private entities upon request.	Same as "Other Federal" above, including both State, private, and appropriate Federal sources, for developing and managing certified segments.	Same as "Other Federal" above.	Seek such additional State authority as may be required to obtain and obligate State funds for developing and managing State-owned certified segments.
Private Organizations, Corporations, pand Individuals		Same as "Other Federal" above or State assistance.	Seek funds from appro priate private, State, or Federal sources for developing and managing certified segments which are privately managed.	Same as "Other Federal" above.	N/A

ICE AGE NATIONAL SCENIC TRAIL
POSSIBLE PROVISIONS OF MEMORANDUMS OF AGREEMENT OR UNDERSTANDING

Parties to Agreements		What the Parties Could Agree to Do		
		Federal Register Notification	Periodic Consultation	
F E D E R A L	Interior National Park Service	Arrange for publication of the official route of the trail in the "Federal Register" pursuant to Section 7 (a) of the Act. Notice of additional certified segments and any relocations will be published from time-to-time.	Periodically consult with managing authorities concerning management of trail segments including coordination with planning of other conservation programs.	
	Other Federal (Forest Service-USDA)	Immediately notify NPS of any changes in the status of certified segments.	Periodically consult with the NPS as outlined above. Establish a primary coordinator for the trail.	
State Agencies and local Governments		Same as "Other Federal" above.	Same as "Other Federal" above.	
Private Organizations, Corporations, and Individuals		Same as "Other Federal" above.	Same as "Other Federal" above.	

APPENDIX D

SAMPLE WRITTEN EASEMENT

AND

ORAL EASEMENT RECORD LETTER

CONSERVATION EASEMENT

This easement is made this ____ day of May, 1982, by and between _____, a partnership, hereinafter called Grantor, and Ice Age Park and Trail Foundation of Wisconsin, Inc., hereinafter called Grantee.

WHEREAS, Grantor is the owner of real estate described as follows:

> The south 90 acres of the following described lands to-wit: the Northeast Quarter of Section 10, Town 8 North, Range 18 East, excepting and reserving however therefrom that part thereof which is Southeast of the center of the highway running across the South East corner of said Quarter Section.
>
> ALSO: the north 65 acres of the 155 acres known as the Schodron Farm, being the North East Quarter of Section 10, Town 8 North, Range 18 East in the Town of Merton, excepting that part of portion of said 65 acres bounded and described as follows: Commencing at the Northeast corner of said North East Quarter Section; thence South along the East Line of said North East Quarter Section 20 rods to a point; thence West on a line 98.2 rods to a point; thence North on a line 7 rods to a point; thence West on a line 61.8 rods to a point on the West Line of said Northeast Quarter Section; thence North along the West Line of said Northeast Quarter Section; thence East along the North Line of said Northeast Quarter Section 160 rods to the point of commencement.
>
> EXCEPTING THEREFROM: That part conveyed to Waukesha County by Deed recorded in Volume 241 of Deeds at page 574 as Document No. 197196, described as follows: All that part of the Northeast 1/4 of Section 10, Town 8 North, Range 18 East, Waukesha County, Wisconsin, bounded and described as follows:
>
> Starting at a point 1721.20 feet south and 21.75 feet West of the Northeast Corner of said Section 10; thence South and parallel to the east line of said Section 10; 141.48 feet;

thence south 38° 00' West 141.48 feet; thence North 52° 00' West 8.25 feet, thence Northeasterly along a 14° 16' curve, of radius 402.62 feet, and intersection angle of 38 degrees, 266.36 feet; thence East 8.25 feet to the place of beginning.

WHEREAS, Grantee is a not-for-profit, tax-exempt organization, recognized under section 501(c)(3) of the Internal Revenue Code, and a charitable corporation described in section 700.40(1)(b)2 of the Wisconsin Statutes.

WHEREAS, Grantee is organized for the purpose of, among other things, constructing and maintaining the Ice Age Trail, a hiking and cross-country skiing trail.

WHEREAS, Grantor wishes to make a charitable contribution to Grantee of a perpetual right of way and conservation easement, as provided for in section 700.40 of the Wisconsin Statutes, for construction and maintenance of the Ice Age Trail and for hiking, cross-country skiing and sight seeing, on, over and across a portion of the above-described property.

NOW, THEREFORE, in consideration of the foregoing, and as a charitable contribution to Grantee, Grantor hereby grants, sells, assigns, and transfers to Grantee, its successors and assigns, a perpetual and exclusive right of way and conservation easement for the construction and maintenance of the Ice Age Trail and for hiking, cross-country skiing and sight seeing, on, over and across the following described real estate:

That portion of the above-described real estate owned by Grantee which lies between the east bank of the Oconomowoc River and the line where an elevation of 930 feet above mean sea level is attained, but in no event less than the area lying between the east bank of the Oconomowoc River and a line 50 feet to the east of the east bank of the Oconomowoc River.

It is understood that the land lying between the east bank of the Oconomowoc River and the line where an elevation of 930 feet above mean sea level is attained lies within the flood plain of the Oconomowoc River.

The interest in real estate conveyed by this easement is not Homestead property.

This conservation easement shall run with the land and shall be binding on and shall inure to the benefit of the parties hereto, their heirs, successors or assigns.

IN WITNESS WHEREOF, this easement has been executed and delivered on the date and year first written above.

_____
A Partnership

By: _____
Robert Gunnerman,
a general partner

STATE OF WISCONSIN)
) ss
_____ COUNTY)

Personally came before me this ____ day of _____, 1982, the above named Robert Gunnerman, to me known, and per-

sonally executed or acknowledged the execution of the foregoing instrument.

_____
Notary Public, State of Wisconsin
My Commission _____

This instrument was drafted by Robert L. Titley, Quarles & Brady, 780 North Water Street, Milwaukee, Wisconsin 53202.

Ice Age Park and Trail Foundation of Wisconsin, Inc.

780 NORTH WATER STREET, MILWAUKEE, WISCONSIN 53202

A NON-PROFIT FOUNDATION DEVOTED TO PARKS AND TRAILS ACROSS WISCONSIN

OFFICERS AND DIRECTORS
NORMAN C. HUTH, President
JOHN ZILLMER, Vice President
JAMES C. MALLIEN, Secretary
ROBERT L. TITLEY, Treasurer
ADAM CAHOW, Director
JOE MILLS, Director
HENRY S. REUSS, Director
RAYMOND STONECIPHER, Director
SARAH SYKES, Director
JULIUS J. WERNER, Director

(date)

(name and address)
(of owner)

Dear _____:

Thank you for permission to route the Wisconsin Ice Age Trail across your property. We will lay out the Trail as agreed to by you and (name of person who contacted landowner), and a rough sketch of this layout is enclosed. The Trail will be marked with painted blazemarks and an occasional directional arrow; and a small "Ice Age Trail" sign may be put up where needed.

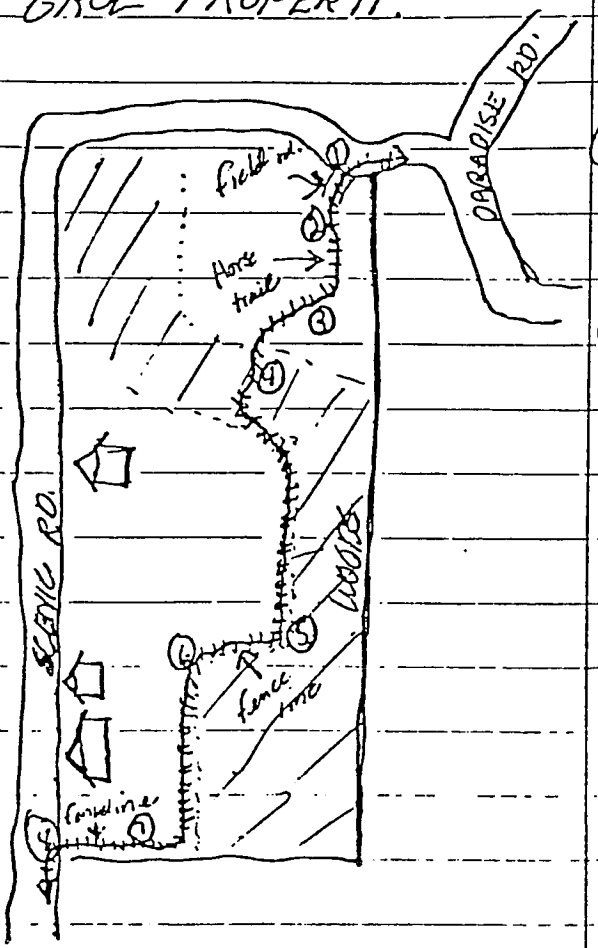
Landowners who have allowed the Trail to cross their land have found that Ice Age Trail hikers are a responsible and respectful group. Your permission makes it possible for Ice Age Trail hikers to better explore Wisconsin's glacial heritage, and we look forward to a cooperative relationship in the future. Should you have any questions about the Trail, please feel free to call me at (your number).

Sincerely,

(your name)
County Coordinator
Ice Age Trail Council
_____ County Chapter

(A sample rough sketch is attached.)

GROL PROPERTY:



(1) Intersection: put up TAT sign.

(2)+(3) open field with trail intersections: put in posts for blazes & ~~signs~~ arrows.

(4) woods – brush out

(5) + (6) Trail intersections – put up signs

(7) fencaline – brush out

(8) intersection with road – sign.

APPENDIX E

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

TRAIL SPECIFICATIONS HANDBOOK

State of Wisconsin

Department of Natural Resources

Trail Specifications Handbook

2540.5

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INTRODUCTION

Increased interest in all types of trail use has placed a greater use load on existing trails and resulted in greater demand for more trails.

As a result of increased use and interest being focused on trails, a need has arisen for the adoption of construction and maintenance guidelines.

No attempt has been made to discuss trail planning and layout in this Handbook. Lengths and circulation patterns of trails vary with the type of use planned and the purpose of the trail as does spacing of trail facilities. Many references have been published relating to trail layout and design criteria. A bibliography of these references is presently being prepared by the Bureau of Parks and Recreation and will be available on request.

The purpose of this Handbook is to provide guidelines for trail construction and maintenance procedures in parks and forests. Guidelines have been established for specific trail types. These guidelines are to be considered in planning the construction of all new trails, and reconstruction of old trails. These guidelines may be utilized by Fish and Wildlife Management as funds become available. All new trail construction and trail revitalization work must be followed by trail maintenance program. The amount of use a trail receives, the amount and type of special structures, the soil and tread type of the trail and vandalism will all dictate the priority of trail revitalization work and the frequency of trail maintenance work.

Trails may be designated for more than one use, if the uses are compatible with trail design. If more than one type of trail use is designated on a single trail corridor, construction standards and maintenance procedures for each use should be considered.

The Trail Specifications Handbook has been prepared in an outline form for easy and quick reference.

I. Trail Markers

A. Purpose - To mark primary trail route

B. Methods

1. Markers - Aluminum or Fiberglass

a. Can be fabricated in quantity beforehand
b. Semipermanent
c. Easily seen and identified
d. Easily replaced and relatively economical

2. Marker Designs

a. Can either be standard arrow (See diagram 60-1) for hiking and horseback riding trails or unique emblem for trail (requires Division approval)
b. Size and color of marker vary with use. Hiking trail markers 4" x 4", and horse trail markers 6" x 6"
c. Bikeways through properties use standard bikeway marker (See diagram 60-10, 60-11)
d. Snowmobile trails - use standard snowmobile marker (see diagram 60-12, 60-13)
e. Cross-country ski trails use standard white on blue marker (See diagram 60-14)
f. Fastened with electric fence wire or aluminum nails. If wire is used, slip-fasten to allow expansion. Check periodically

3. Posts

a. Used in open areas
b. Markers placed on posts - posts do not have to be squared on four sides
c. Easily seen and identified
d. Time consuming to install and replace
e. Semipermanent
f. Can be fabricated in quantity beforehand
g. Posts must be anchored in ground (See diagram 60-2)
h. Set in obvious places

Marking of Trails Used by Off-Road Vehicles

The increased popularity of snowmobiles and other off-road vehicles accelerates the need for proper marking of road and trails used by these vehicles. The property manager shall have discretion in reasonably marking the roads and trails. The trail or road itself should be marked with signs including trailblazers, directional guide arrows, stop signs, and warning type signs. A trailblazer is used to reassure the operator that he/she is on the trail. The directional guide arrows supplement the trailblazer at intersections and other key locations. The use of the stop sign is clear. Warning signs may be placed at the discretion of the property manager.

Natural conditions will determine the frequency of trail marker placement. It is recommended that the signs be placed on the right side of the user and allowance be made for normal maximum annual snow accumulation in placing the signs. Signs on highway right-of-ways alerting the motorist of trail crossings shall be of standard highway signing (see the Manual of Traffic Control Devices - Department of Transportation).

Property managers in their discretion may remove or properly mark cables, barricades, wires, gates and other nonnatural obstructions on trails. It is suggested that obstructions be marked by using approach warnings, by clearly marking the object with contrasting color markings, or by placing snow fencing around the object.

II. TRAIL SIGNS

A. Purposes

1. Highway guide sign - alert auto driver to trail location and crossings
2. Identify and name primary trail
3. Identify major trail use; i.e. hiking, snowmobiling, bicycling, etc.
4. Identify intersecting trails
5. Give directions and distances to public facilities, access points, etc.
6. Give directions and distances to other points of interest
7. Identify features and give information
8. Explanation of features along trails
9. "You are here" maps
10. Signs advising users of trail conditions
11. Regulatory signs
12. Indicate distances travelled

B. Methods

1. Signs - Vary In Size With Amount of Lettering

   a. Fabricated in quantity beforehand
   b. Semipermanent
   c. Easily seen and identified
   d. Time consuming to erect and maintain; strength and durability essential
   e. "You are here" maps - fiberglass, painted or rustic signs as authorized
   f. Stop signs, signs advising of conditions, and direction signs - use standard signs and colors. All signs at or near highway should be consistent with state statutes
   g. Regulatory signs - white background with black letters and border

2. Posts

   a. Squared on four sides with roofed top or round
   b. Pressure treated with penta or other suitable preservative
   c. Stained - brown
   d. Anchored

3. Mile Posts

a. Identify distances travelled along the trail
b. Used on trail five miles or over in length

III. CONSTRUCTION SPECIFICATIONS

A. All trails

1. Routing and Alignment (See diagram 60-8)

a. Routed to minimize conflict of uses and a minimum number of road crossings
b. Routed to take advantage of topography, scenery, vegetation, historic sites, etc. Keep protection of the resource being utilized in mind at all times
c. Trail located and measured

1) Cost estimates
2) Quantity estimates
3) Provide distance information

2. Drainage

a. Surface problems are likely to occur in sidehill construction

1) Outsloping of tread - 1/2" per ft. of tread width maximum (See diagram 60-3)
2) Dishing of tread - concave tread cross section can be used only in well drained soils or with blacktop to direct water runoff (See diagram 60-3)
3) Inside ditch to intercept sidehill runoff (See diagram 60-3)
4) Culverts

a) Catch runoff from inside ditch
b) Channel runoff from gullies and draws

5) Grade dips

a) Intercept runoff on tread surface
b) At frequent enough intervals to prevent water from building up erosive force

6) Water bars (see diagram 60-4)

a) Intercept runoff on tread surface
b) At frequent enough intervals to prevent water from building up erosive force
c) Use where grade dips are not adequate

b. Subsurface - springs, seeps and poorly drained areas

1) Agricultural drain tile
2) Raised tread section (See diagram 60-6)
3) Backfill with granular inorganic materials or wood chips
4) Collecting ditches and runoff channels to disperse water evenly
5) Boardwalks

3. Structures

a. Bridges are to be constructed in compliance with NR 320 Wis. Adm. Code

1) Foot, cross-country ski and bicycle traffic
2) Horse traffic
3) Snowmobiles
4) 5' clearance from bridge to water level on navigable waters except as provided by NR 320.
5) Temporary bridges may be used for snowmobiling or cross-country skiing
6) Railings 42" high, not over 9" between railings and a 4" minimum kick plate required (See diagram 60-15)
7) Permits needed on navigable waters

b. Fords

1) Foot traffic
2) Horse traffic
3) Solid bottoms
4) Shallow streams and small, low wet spots

c. Fences and walls (must be 42" high to top rail)

1) Traffic control
2) Reduce safety hazards
3) Protection of fragile areas, i.e., plants, historic sites, etc.

d. Retaining walls

1) For use in passing through unstable soils

a) Dry rubble of flagstone wall
b) Railroad tie construction

e. Parapets

1) For use only where safety demands
2) More frequently used on riding trails

a) Earth berm
b) Dry wall, rocks, railroad ties

f. Steps (See diagram 60-5)

1) Correct riser-tread relationship
2) Handrail where necessary
3) Construction

a) Flat stone risers
b) Railroad tie risers - earth backfill or bituminous mix where use is heavy
c) Log risers - earth backfill

g. Perrons (See diagram 60-5)

1) Riser and inclined ramp
2) Construction

a) Stone riser - earth backfill
b) Log riser - earth backfill
c) Railroad tie riser - earth backfill or bituminous mix where use is heavy

4. Surface Preparation

a. Excavation

1) Excavate soils with characteristics unsuitable for trail surface, i.e., peat, muck, clay, etc.
2) Backfill

a) Granular materials
b) Suitable soil materials

b. Level grading on suitable soils and level topography
c. Slight crown on level grading for drainage - 1/2" per foot of tread width (See diagram 60-3)

1) Cuts

a) Side slopes as steep as materials will stand without serious erosion, or:

1/ 1:1 on cuts up to 1-1/2' deep
2/ 2:1 on cuts over 1-1/2' deep
3/ Rock and consolidated material will permit steeper side slopes
4/ Vegetate for stabilization

2) Fills

a) Side slopes as steep as materials will stand without serious erosion, or:

1/ 2:1 on fills up to 1-1/2' deep
2/ 3:1 on fills over 1-1/2' deep
3/ Vegetate for stabilization

3) Treads

a) Outslope whenever possible

5. Trail Facilities

a. Parking lots
b. Toilets
c. Wells

d. Garbage receptacles
e. Grills or fire rings
f. Picnic areas or lunch stops
g. Campsites
h. Rest stop benches; should be anchored
i. Hitching rails on horseback riding trails

B. Scenic Hiking Trails

1. Grades

a. Desirable maximums where topography and terrain permits

1) 15% maximum sustained grade
2) 20% maximum short pitch (100 feet or less), surfacing material required
3) 0-10% desirable grade

b. Steeper grades

1) Perrons
2) Steps
3) Switchbacks, only when absolutely necessary

2. Tread Widths

a. Two to three foot tread
b. Single file use

3. Clearing and Grubbing (See diagram 60-9)

a. Clearing width

1) Two feet on each side of tread

b. Clearing height

1) Arms reach overhead with axe extended (approximately 10 feet)

c. Materials to be cleared

1) Small trees (up to 6" DBH) from tread
2) Shrubs, cut below ground line in tread, cut flush with ground outside of tread
3) Vines
4) Low hanging branches
5) Branches projecting into cleared area
6) Blowdown
* 7) Hazardous dead overhead branches, and dying timber unless steeply away from trail

d. Clearing practices

1) Prune branches at trunk or main limb
2) Remove stumps from tread area

e. Grubbing

1) All roots, stumps, etc., in tread projecting over 1" above finished tread surface
2) All rocks projecting over 1" above tread surface, unless solid bedrock or large blocks of rock such as quartzite *

f. Mowing

1) Mowed strip in grassy country

4. Surface Materials

a. Stable, well-drained indigenous soils
b. Granular materials
c. Boardwalks in poorly drained or swampy areas
d. Wood chips (in well drained areas only)
e. Bituminous Paving *

5. Spraying

a. Brush, cut flush with the ground may be sprayed with approved herbicides to prevent sprouting
b. Stumps from removed trees may be sprayed with approved herbicides
c. All pesticide treatment within 200 feet of water or in low areas should consist of individual treatments of stems with approved herbicides
d. Check all pesticide treatment with DNR District entomologist and Pesticide Specialist, Madison *
e. Review the 4200 series of manual codes concerning pesticide purchase, storage and use.

C. Nature Trails

1. Grades

a. Desirable maximums where topography and terrain permits

1) 5% maximum sustained grade
2) 10% maximum short pitch (100' or less)
3) 0-5% desirable grade

b. Steeper grades

1) Same as scenic hiking trails

2. Tread Widths

a. Naturalist guided tours - 5' to 6' tread

1) More than one person abreast
2) Assembly at given points

b. Self-guiding tours - 3' to 4' tread

1) Single file or double file
2) Stopping at given points
3) Passing others on trail

3. Clearing and Grubbing - Initial Development

a. Clearing width

1) One foot on each side of trail

b. Clearing height

1) Same as on scenic hiking trails

c. Materials to be cleared

1) Same as on scenic hiking trails

d. Clearing practices

1) Same as scenic hiking trails

e. Grubbing

1) Same as scenic hiking trails

f. Mowing

1) Same as scenic hiking trails

4. Surface Materials

a. Stable, well-drained indigenous soils
b. Granular materials
c. Treated surfaces

1) Bituminous mix
2) Bituminous penetration coat

d. Boardwalks in poorly drained or swampy areas
e. Wood chips

5. Spraying

a. Same as for scenic hiking trails when there is no conflict (See 40-5) (Approved by Park Naturalist)

D. Bicycle Trails

1. Design Speed - varies with type of bicycle, slope, surface conditions, wind and the power of the bicyclist. The majority of bicyclists travel at slower speeds, usually not over 15 mph.

2. Grades

a. Desirable maximums where topography and terrain permits

1) 5% maximum sustained grade
2) 10% maximum short pitch (100' or less)
3) 0-5% desirable grade

b. Steeper grades

1) Switchbacks (large radii) use formula in item 5

3. Tread Widths

a. 7' tread width - two way, 4' tread width - one way
b. Single file travel
c. Widen on curves up to 4' additional width
d. Space for bicycles to pass allowed for in tread width
e. Stopping site distance

Design Speed (mph)	Stopping Sight Distances for Downhill Gradients of: 0%	5%	10%
10	50'	50'	60'
15	85'	90'	100'

4. Clearing and Grubbing - Initial Development

a. Same as scenic hiking trails

5. Turning Radius

a. R = 1.25 V + 1.4 where R is the radius of curvature in feet and V is the velocity in miles per hour, i.e., 10 mph-radius 13.9 feet minimum, 20 mph-radius 26.4 feet minimum.

6. Surface Materials

a. Consolidated granular materials - 6" deep (limestone screenings, gravel, rotten granite or other endemic materials)

1) Well-drained
2) Compacted
3) Smooth

b. Treated surface

1) Bituminous mix
2) Bituminous penetration coat

E. Horseback Riding Trails

1. Grades

a. Maximums

1) Same as scenic hiking trails

b. Steeper grades

1) Perrons
2) Switchbacks, only use if there are no other alternatives

2. Tread Widths

a. 5'-6' tread width
b. Single file
c. Space for horses to pass

3. Clearing and Grubbing - Initial Development

a. Clearing width

1) Same as scenic hiking trails

b. Clearing height

1) Arm's reach with axe overhead (approximately 12 feet)

c. Materials to be cleared

1) Same as scenic hiking trails

d. Clearing practices

1) Same as scenic hiking trails

e. Grubbing

1) Same as scenic hiking trails

4. Surface Materials

a. Selected stable, well-drained indigenous soils

1) Not rocky
2) Cohesive structure

5. Spraying

a. Same as scenic hiking trails (see 40-6)

F. Cross-Country Ski Trails

1. Grades

a. Desirable maximums

1) 40% for experts, short run
2) 12% maximum sustained grade
3) 8% desirable grade

b. Steeper grades

1) Provide run out area at bottom
2) On slopes greater than 8% trail should be wide enough to allow skier to "snowplow" down or "herringbone" up
3) Traverse hillside back and forth when necessary. Avoid switchback
4) Avoid sharp turns at bottom of slopes. If turn is necessary, clear a run out area in case skier misses turn.

2. Tread Widths

   a. One-way - 4' tread (One-way trails should be used whenever possible).
   b. Two-way - 7' tread
   c. On slopes over 8% trail should be widened seven feet for snowplowing down and seven feet for herringbone up. Total minimum width for one-way trail - 11 feet; for two-way trail - 21 feet.

3. Clearing and Grubbing - Initial Development

   a. Clearing width

      1) Two feet each side of tread

   b. Clearing height

      1) Seven feet above average snow level

   c. Materials to be cleared

      1) Small trees up to 6" DBH
      2) Shrubs
      3) Vines
      4) Low hanging branches
      5) Any branches that snow may bend into the trail corridor
      6) Blowdown
      7) Hazardous dead and dying timber

   d. Clearing practices

      1) Prune branches at trunk or main limb
      2) Cut stumps at grade or remove entirely

   e. Grubbing

      1) All roots, stumps, etc., in tread which cannot be covered
      2) All rocks projecting 1" above trail tread

4. Surface Materials

   a. If used for only cross-country skiing establish grass and clover on the tread

   b. If used for hiking, establish tread

      1) Stable, well-drained indigenous soil
      2) Granular material
      3) Boardwalks in poorly drained or swampy areas
      4) Wood chips, sawdust, etc.

5. Spraying

a. Same as for scenic hiking trails (See 40-6)

G. Snowmobile Trails

1. Grades

a. Desirable maximums

1) 25% maximum sustained grade
2) Cross contours at right angles where possible. Avoid routing along sideslopes.
3) Approaches and exits to slopes and grades should be straight, at least as long as the slope. Grades and hill crossings should be wider than normal trail widths.

2. Tread Widths

a. One-way

1) Minimum width 6 feet
2) Maximum width 8 feet

b. Two-way

1) Minimum width 10 feet
2) Maximum width 12 feet

3. Clearing and Grubbing - Initial Development

a. Clearing width

1) Clear brush two feet each side of tread

b. Clearing height

1) Branches ten feet above trail tread will be cleared

c. Materials to be cleared

1) Shrubs
2) Vines
3) Low hanging branches
4) Any branches that snow may bend into the trail corridor
5) Blowdown
6) Hazardous dead and dying timber

d. Clearing practices

1) Prune branches at trunk or main limb
2) Cut stumps at grade or remove entirely

e. Grubbing

1) All roots, stumps, etc., in tread which cannot be covered.
2) All rocks projecting 1" above trail tread

4. Surface Materials

a. If used for only snowmobiling, establish grass and clover on tread
b. If used for other purposes during the nonsnow season, install appropriate tread needed for the particular use as indicated in this manual
c. During snow season constant dragging of the trail is needed to eliminate rough spots that develop from use. At minimum it should be dragged once a week.

5. Spraying - Same as for scenic hiking trails (See 40-6)

6. Desirable Specifications

a. Turning radius - minimum 25 feet
b. Trail vertical and horizontal sight distance should be a minimum of 50 feet. Snowbanks at road crossings should be cut back for adequate visibility.
c. Do not route trails across lakes, streams or other bodies of water. If stream crossings are necessary, provide bridges at least 6 feet wide.
d. Route trails away from wilderness areas, winter browse areas, etc., where anticipated conflicts of use might occur.

IV. MAINTENANCE

A. Brushing and Mowing

1. Periodic maintenance to same limits as clearing

2. As frequently as required to maintain safe, pleasant passage

B. Erosion Repair

1. Patching

2. Erosion control structures or treatments where required

3. Rerouting of trail in problem areas

4. Planting, brush barriers, etc.

5. Seeding and sodding

C. Surface Repair

1. Patching of tread

2. Replace material losses caused by wear and erosion

3. Root and plant removal

D. Traffic Control - Short Cuts and Unwanted Trails (See diagram 60-7)

1. Adequate signing

2. Barriers and obstacles

a. Brush
b. Rocks
c. Fences and rails

3. Obliterate old trails

4. Planting

a. Dense or impassable cover at trouble spots
b. Seeding or planting old trails

E. Service of Access Point and Terminal Facilities

1. Toilet maintenance

2. Trash removal

3. General cleanup

4. Should be gated

F. Emergency Exits and Access Points Should be Maintained

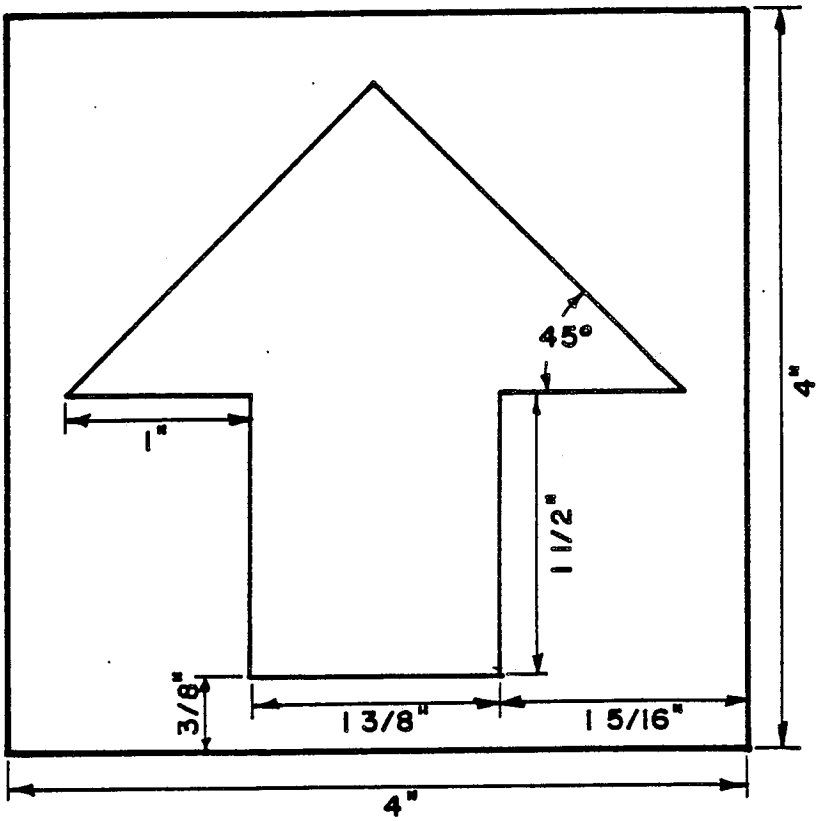
G. Signs and Markers

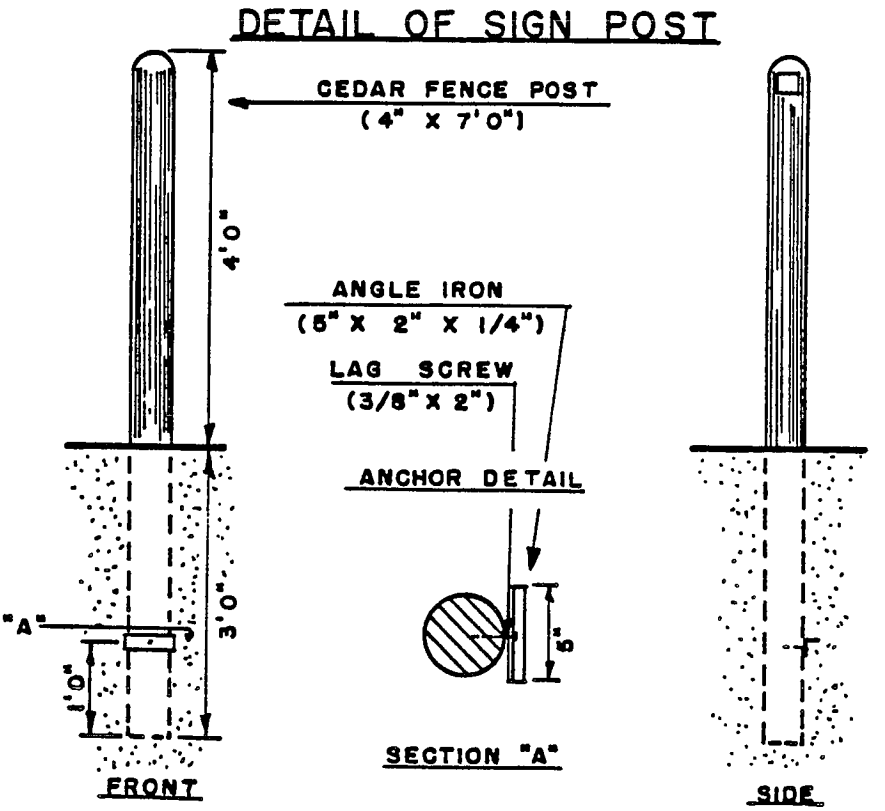
1. Replace all missing markers and signs

2. Replace and paint or stain as needed so signs are neat appearing and readable

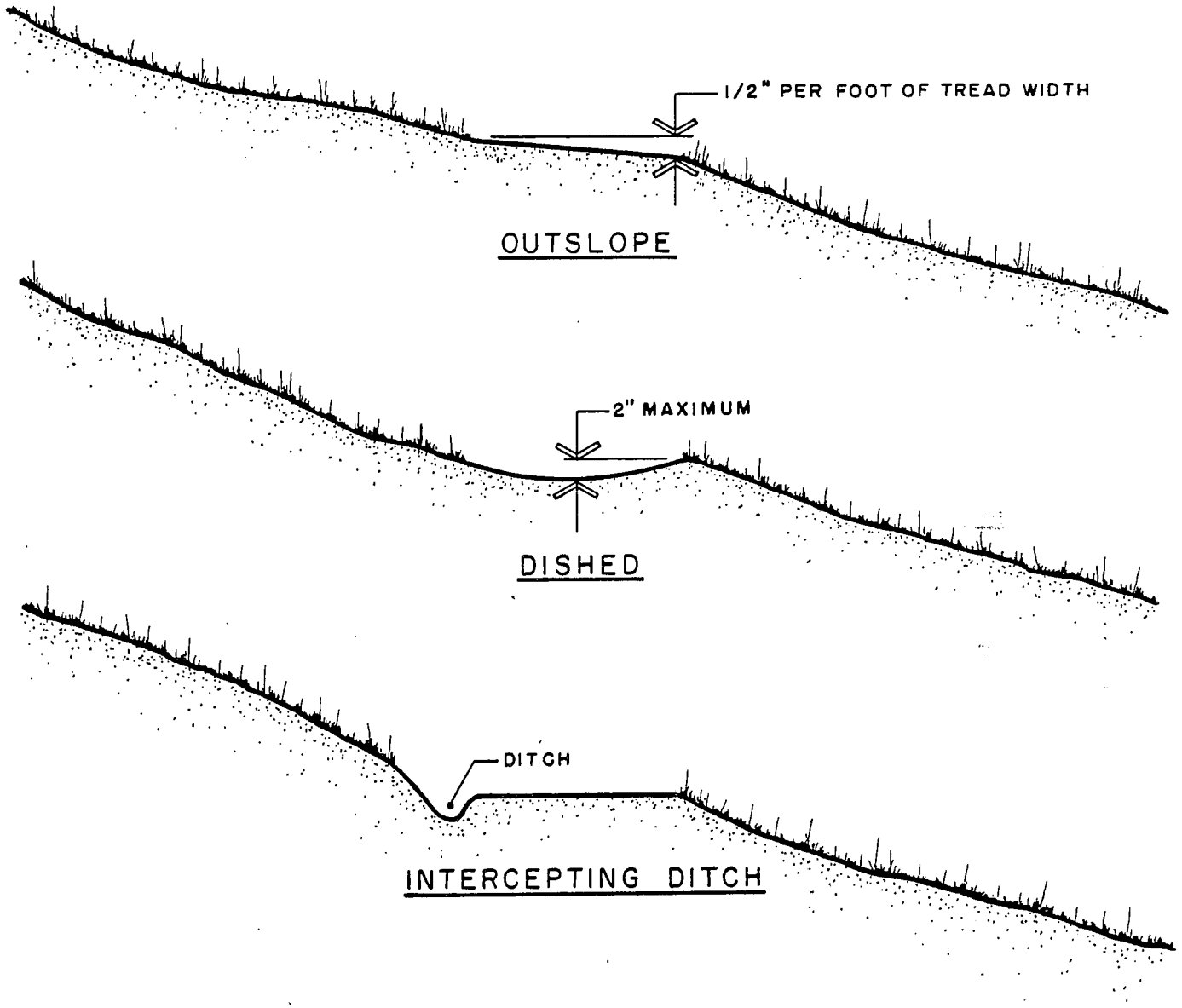
STANDARD 4" TRAIL MARKER

NOTE: BLACK ENAMEL ARROW ON WHITE BACK-GROUND

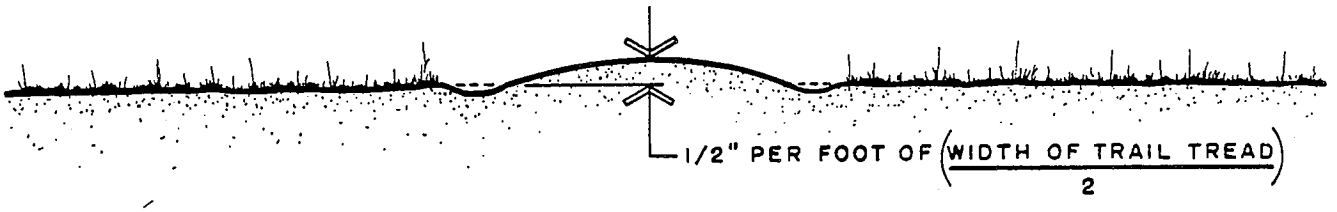



DETAIL OF SIGN POST
CEDAR FENCE POST
(4" X 7'0")
4'0"
ANGLE IRON
(5" X 2" X 1/4")
LAG SCREW
(3/8" X 2")
ANCHOR DETAIL
"A"
3'0"
1'0"
FRONT
SECTION "A"
SIDE

TYPICAL SECTIONS FOR SIDEHILL TRAIL CONSTRUCTION

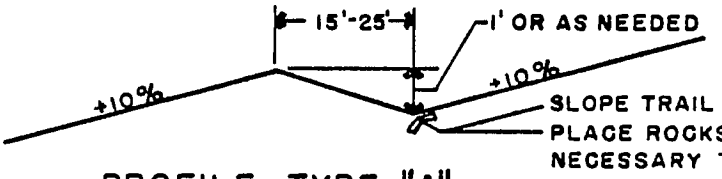


TYPICAL SECTION FOR LEVEL GROUND TRAIL CONSTRUCTION

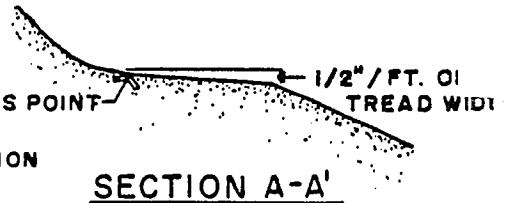


CROWN

DETAILS OF GRADE DIP & WATER BAR

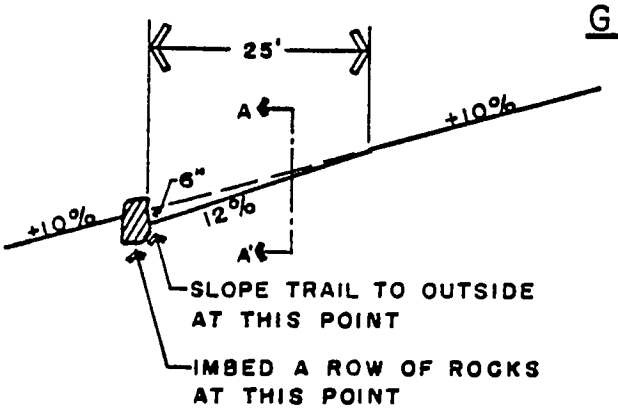


PROFILE - TYPE "A"



SECTION A-A'

GRADE DIP



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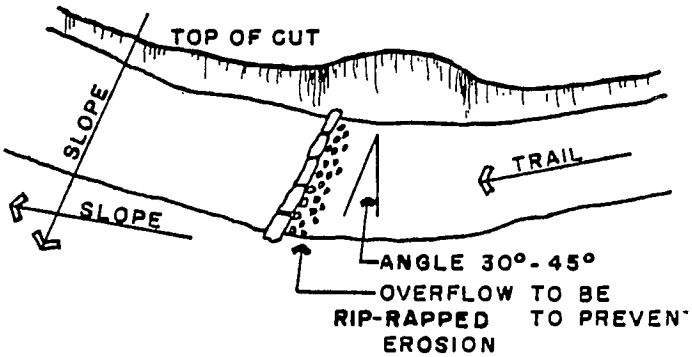
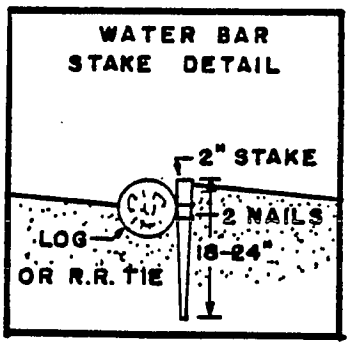
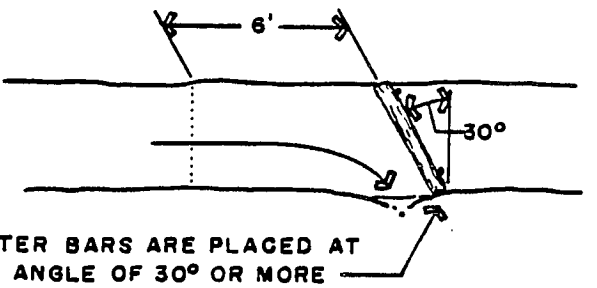
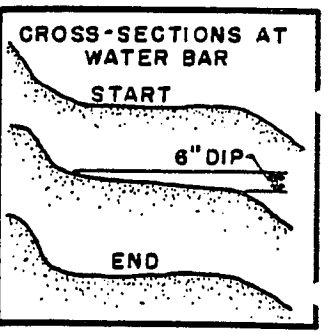


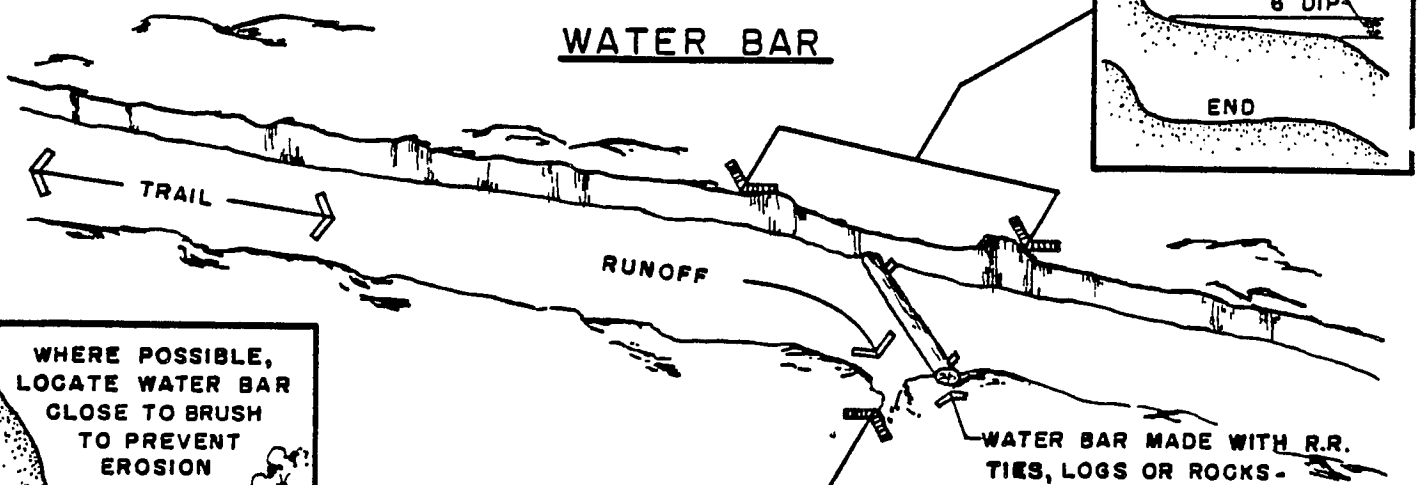
PLAN OF PROFILE "B"

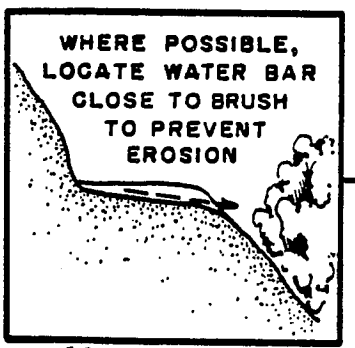




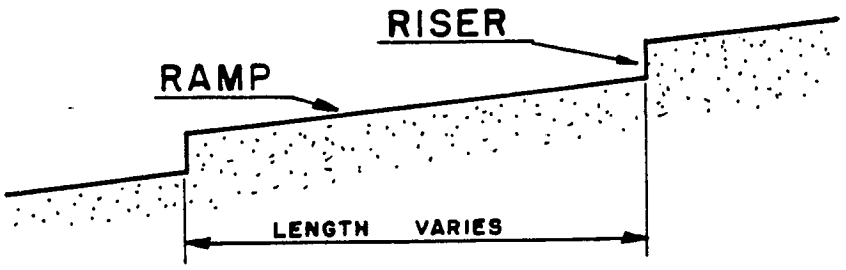


WATER BAR

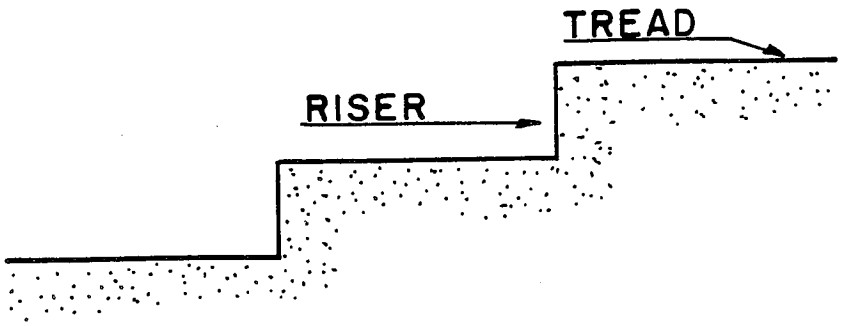




PERRON DETAIL



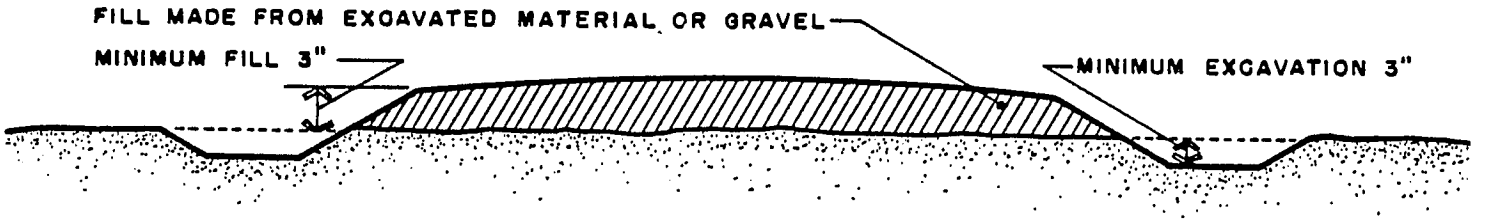
STEP DETAIL



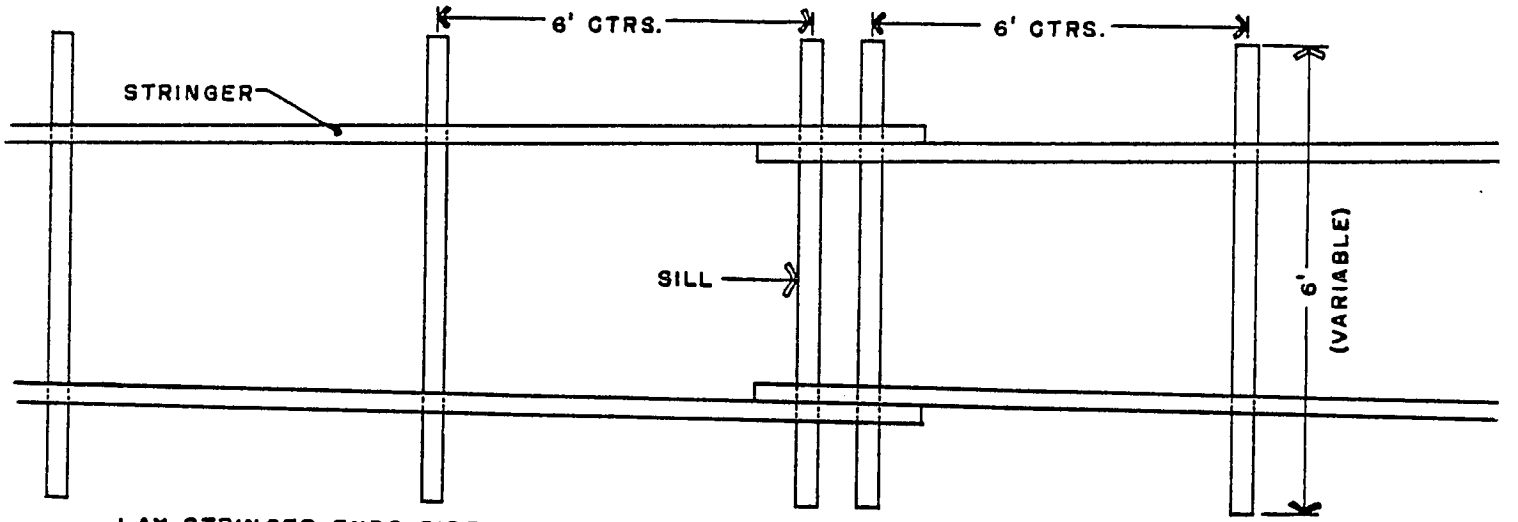
RISER-TREAD RELATIONSHIP

RISER	TREAD
4"	19"
4-1/2"	16-1/2"
5"	15"
5-1/2"	13-3/4"
6"	12-1/2"
6-1/2"	11-1/2"
7"	10-3/4"

TRAIL CONSTRUCTION FOR WET AREAS



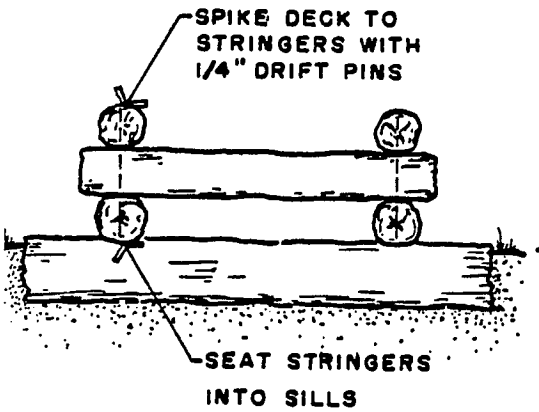
SECTION THROUGH BOGGY GROUND TO BE USED ONLY WHERE A CHANGE IN LOCATION IS IMPRACTICAL



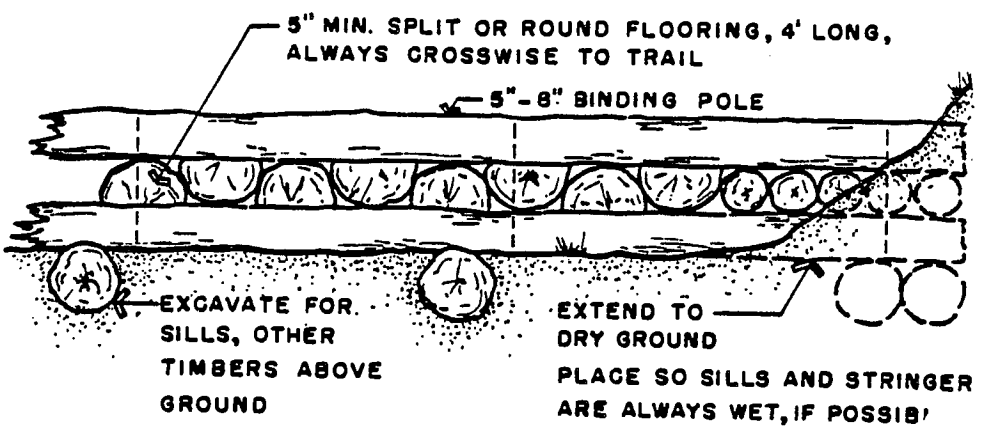
LAY STRINGER ENDS SIDE BY SIDE AT JOINTS — ON DOUBLE MUD SILLS. STRINGERS AND SILLS AT LEAST 8" IN DIAMETER. PEEL ALL LOGS.

SILL AND STRINGER LAYOUT

CORDUROY CONSTRUCTION

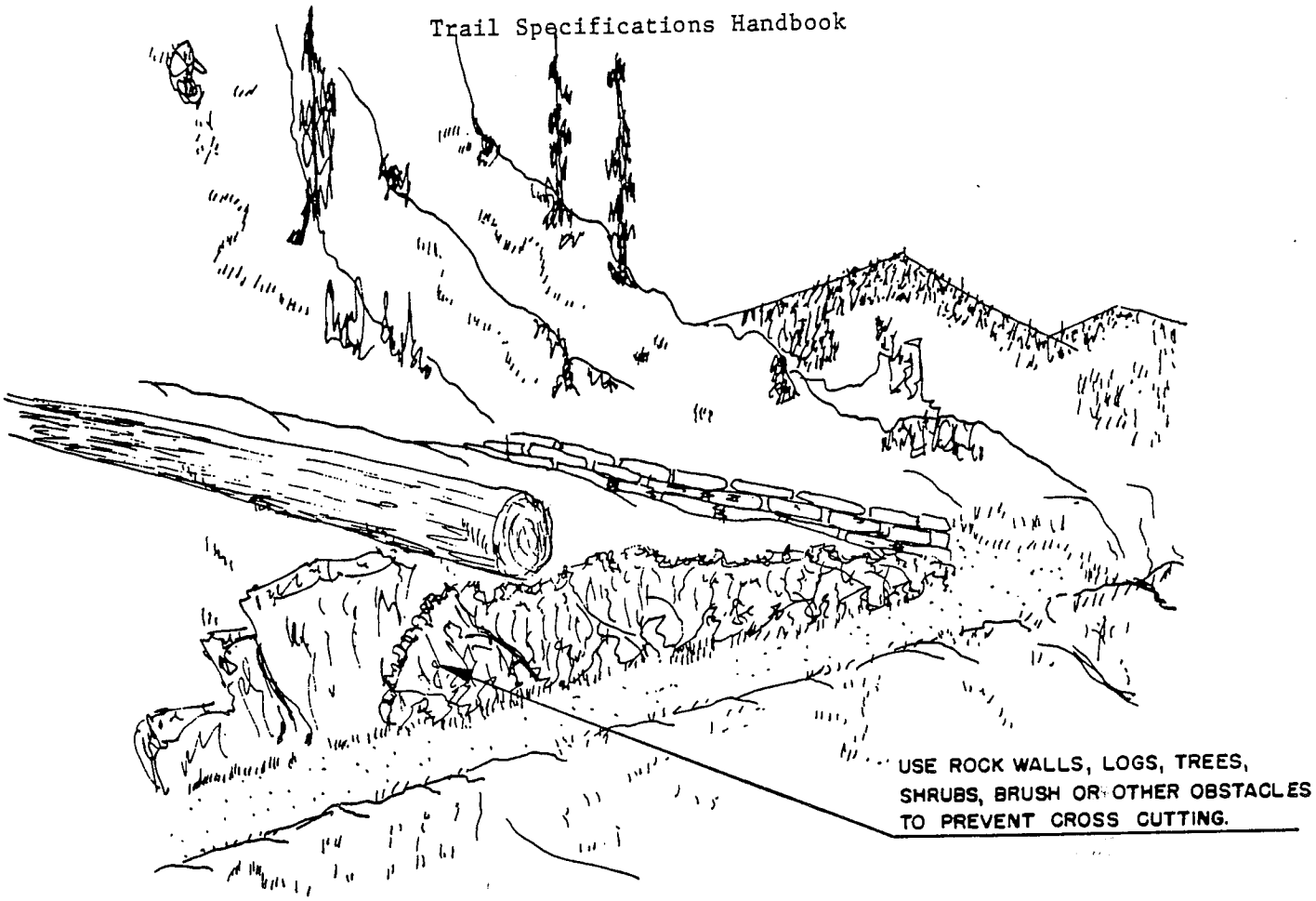


END VIEW

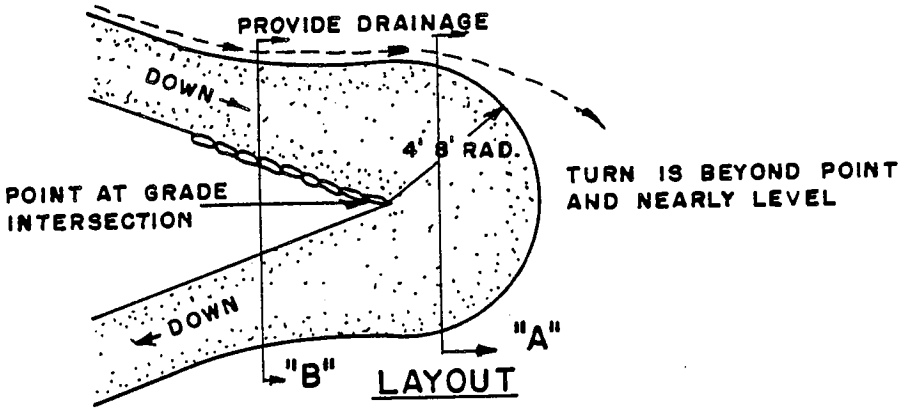


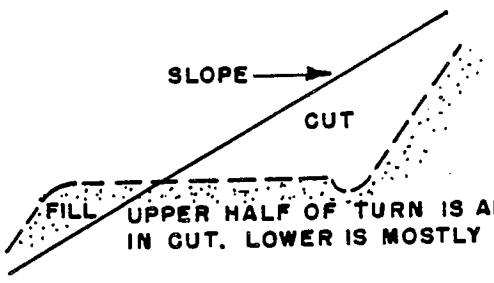
SIDE VIEW

NOTE: USE MOST DURABLE SPECIES AVAILABLE — CEDAR, FIR, LARCH, PINE, SPRUCE — IN THAT ORDER.

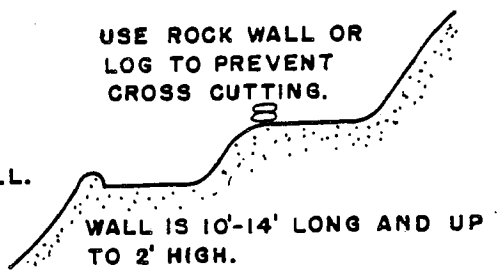


SWITCHBACK





SECTION "A"



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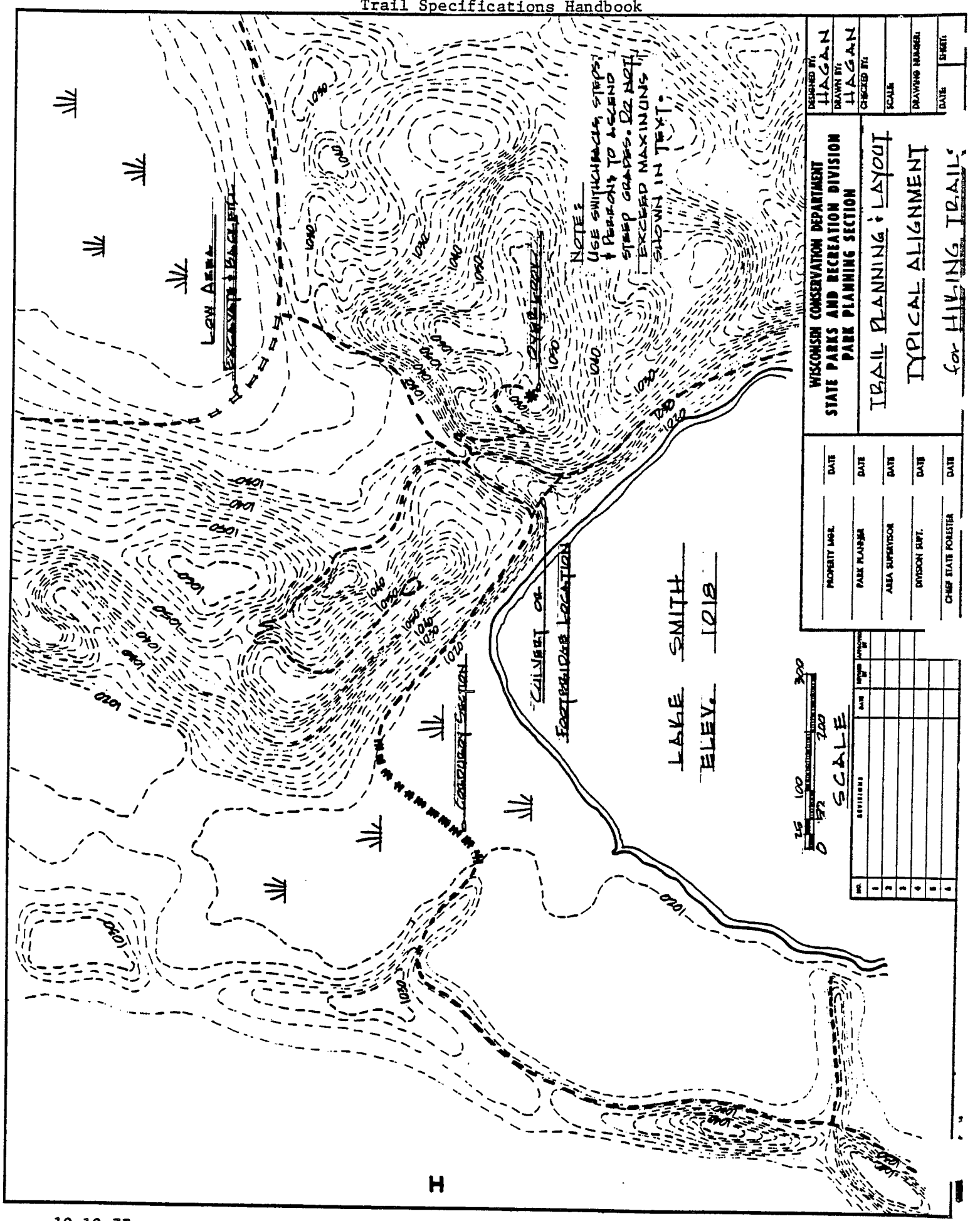
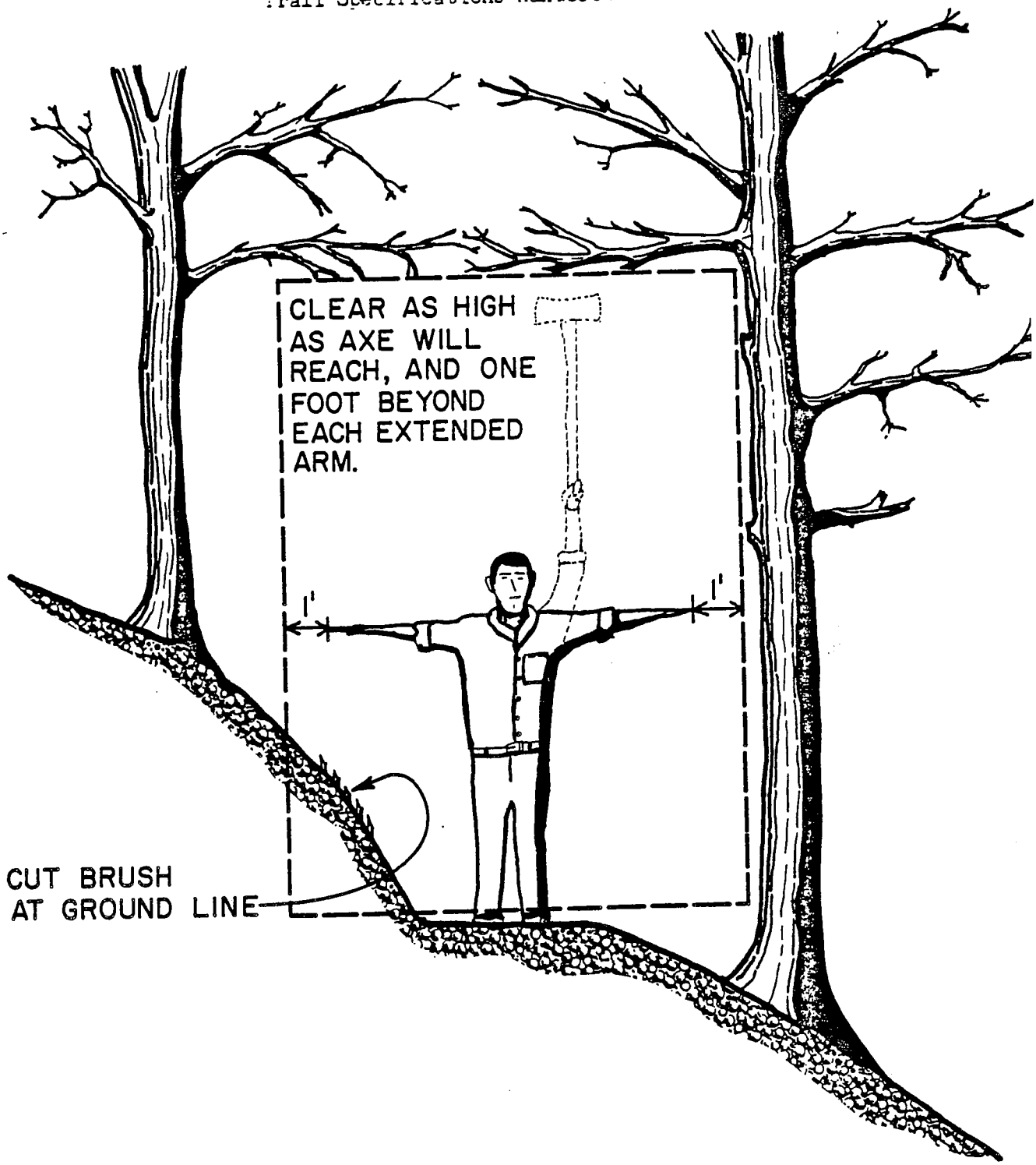

WISCONSIN CONSERVATION DEPARTMENT
STATE PARKS AND RECREATION DIVISION
PARK PLANNING SECTION
TRAIL PLANNING & LAYOUT
TYPICAL ALIGNMENT
for HIKING TRAILS
DESIGNED BY: HAGAN
DRAWN BY: HAGAN
CHECKED BY:
SCALE:
DRAWING NUMBER:
DATE:
SHEET:
PROPERTY MGR. DATE
PARK PLANNER DATE
AREA SUPERVISOR DATE
DIVISION SUPT. DATE
CHIEF STATE FORESTER DATE
NOTE:
USE SWITCHBACKS, STEPS & PERRONS TO ASCEND STEEP GRADES. DO NOT EXCEED MAXIMUMS SHOWN IN TEXT.
LOW AREA
EXCAVATE & BACKFILL
OVERLOOK
CULVERT OR FOOTBRIDGE LOCATION
CORDUROY SECTION
LAKE SMITH
ELEV. 1018
SCALE
0 25 50 100 200 300
H



GENERAL CLEARING REQUIREMENTS

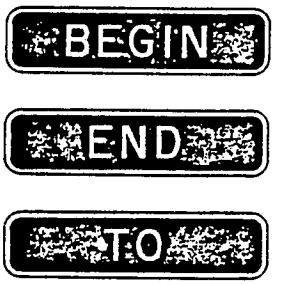
(See text for specific criteria on clearing)

MOTOR VEHICLE DIRECTED SIGN

Black on Yellow Background
(30"x30"; 24"x18")

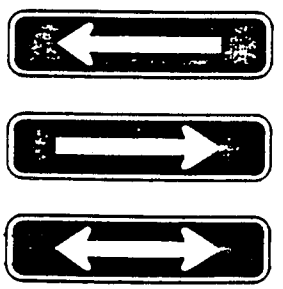
BIKE ROUTE DESIGNATION SIGNS (White on Green Background)

Standard Route Sign
(24"x18")



Message Plates

To be mounted above the official marker to designate the beginning and ending of the bike route, and to trailblaze to the bike route (24"x6")



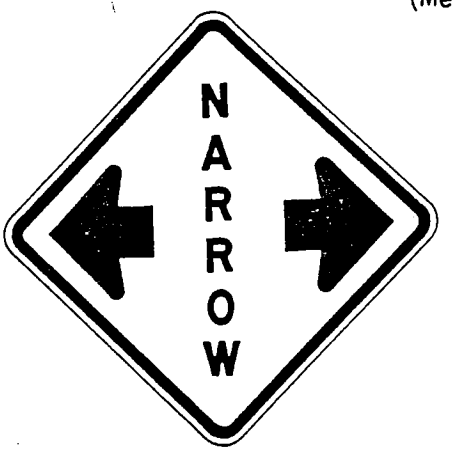
Directional Plates

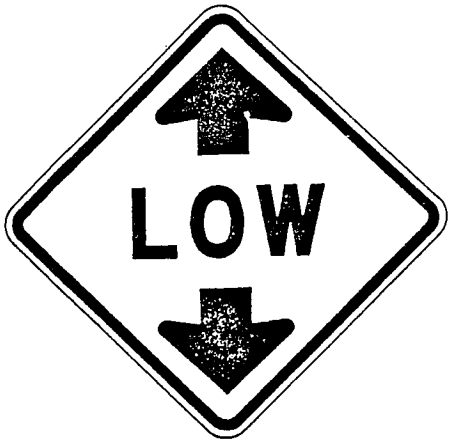
To be mounted below the official marker to guide bicyclists along the bike route and to trailblaze to the bike route. (24"x6")

Source: WISCONSIN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1971

BICYCLIST DIRECTED WARNING SIGNS FOR BIKE PATHS

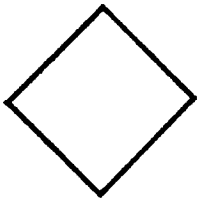
(Black on Yellow Background 18"x18")
(Message Plates 12"x 9")





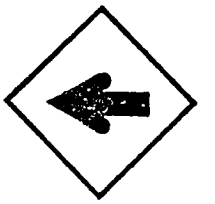
HILL

PED
XING



TRAIL BLAZER

Purpose: To delineate the trail and to reassure the user that he is on the trail.
Size: 6" x 6"
Color: Reflective orange with black border. A limited number of 9" x 9" blazers may be used where needed.



DIRECTIONAL ARROW SIGN

Purpose: Indicates trail direction or changes in trail direction.
Size: 9" x 9"
Color: Reflective orange background with black arrow and border.
Legend: 5¼" directional arrow.

STOP SIGN

Purpose: Use on trail prior to road crossing.
Size: 12" x 12" or 18" x 18"
Color: Reflective red background and reflective white letters and border.
Legend: 12" x 12" size–4" upper case letters, 18" x 18" size–6" upper case letters.

REGULATORY SIGN

Purpose: To inform snowmobile driver of regulations.
Size: 12" x 18"
Color: Reflective white background and black letters and border.

WARNING SIGNS

Purpose: To warn snowmobile driver of hazard.
Size: 12" x 12"
Color: Reflective yellow background and black letters or legend.

DO NOT ENTER SIGN

Purpose: To indicate one way trail or restricted area.
Size: 12" x 12" with 2½" letters.
Color: Reflective red background with white letters, border and legend.

PERMISSIVE

Purpose: To indicate snowmobile trails and other areas where snowmobiling is permitted.
Size: 12" x 12"
Background Color: Reflective white.
Legend: Reflective green circle. Black snowmobile symbol.

RESTRICTIVE

Purpose: To indicate areas where snowmobiling is not permitted.
Size: 12" x 12"
Background Color: Reflective white.
Legend: Reflective red circle. Black snowmobile symbol.

SNOWMOBILE ROUTE SIGN

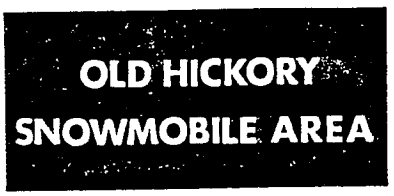
Purpose: To designate authorized snowmobile routes.
Size: Main signs—24" x 18"
Directional arrow sign—24" x 6"
Color: Green reflectorized background with white reflectorized letters and symbols.

GUIDE SIGN

Purpose: Directs snowmobile driver to his destination.
Color: Brown background with reflective white letters and legend.
Legend: 2½" upper case letters.

SNOWMOBILE TRAIL SYMBOL

Purpose: Indicates snowmobile trail where trail intersects highways.
Size: 13" x 10½"
Color: Reflective orange with black letters and symbol.

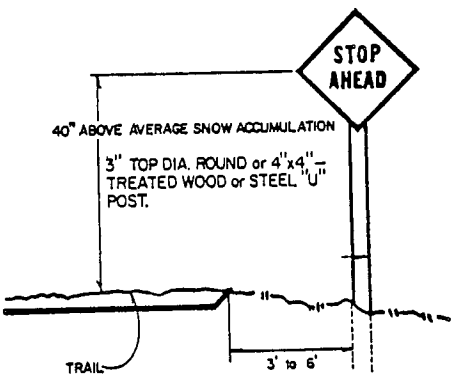


INFORMATIONAL SIGN

Purpose: Furnish information about trails or facilities.
Color: Painted or stained brown background with painted or routed white letters.
Legend: Maps.

HIGHWAY GUIDE SIGN

Purpose: Inform auto driver of location of snowmobile trail or route.
Color: Brown background with painted reflective white letters and legend.



DIRECTIONAL ARROW SIGNS AND TRAIL BLAZERS MAY BE MOUNTED ON 2"x2" WOOD OR STEEL "U" POSTS.

SIGN PLACEMENT

SNOWMOBILE CROSSING WARNING SIGN

Purpose: Warns motorists of a snowmobile trail crossing.
Size: 30" x 30" or 36" x 36"
Color: Yellow background with black symbol and lettering and black border.

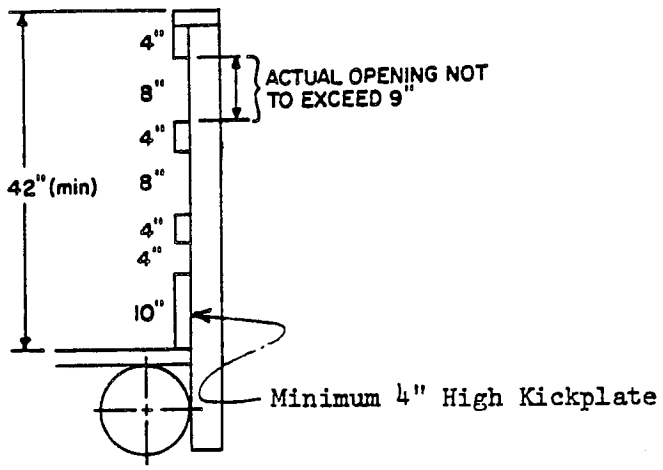
CROSS COUNTRY SKI TRAIL MARKER

WHITE SYMBOL ON BLUE BACKGROUND

4"X4"

. Drawing copied from "SNOWMOBILE AID PROGRAMS GUIDE"
as prepared by Bureau of Aid Programs.

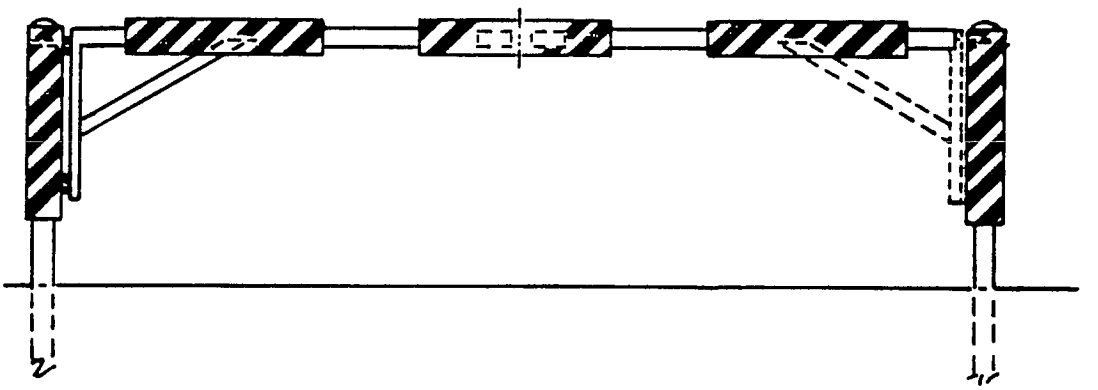
RAILING DETAIL

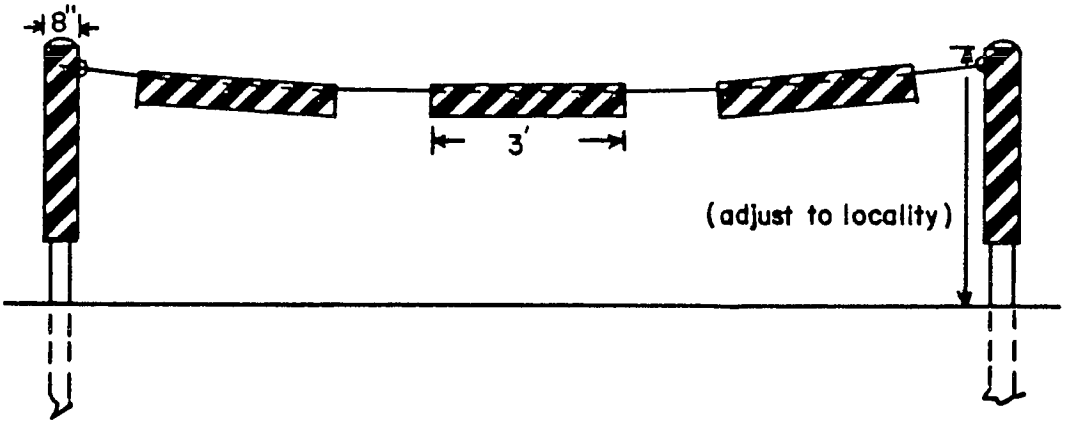


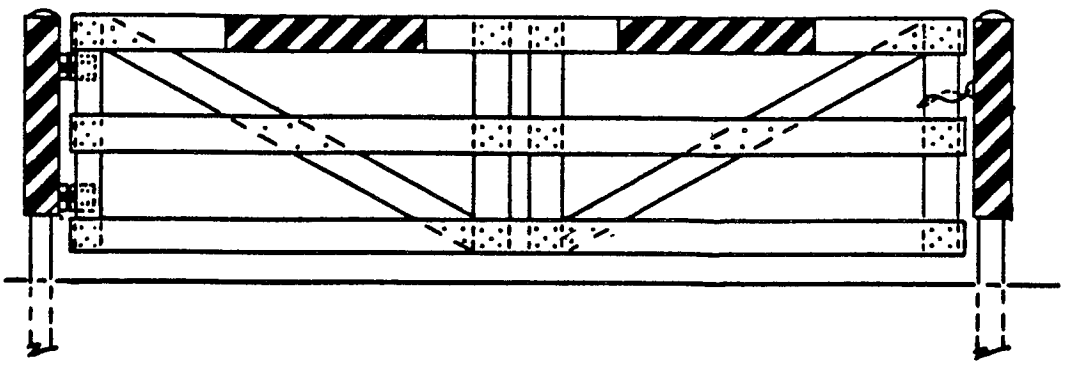
The railing shall be a minimum of 42 inches in height above the deck and designed to prevent the passage of an object with a diameter larger than 9 inches. All railings shall be designed to withstand a load of at least 200 pounds applied in any direction at any point.

BARRIER MARKING EXAMPLES

DEPARTMENT OF NATURAL RESOURCES







Uprights and horizontal reflector board may be visible from both directions if necessary.

Boards to be reflectorized, white background with reflectorized orange stripe on a diagonal to give alternate orange and white stripes about 3 inches wide.

Configuration may be modified to suit local conditions.

As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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