

MEMORANDUM

TO: Knobstone Trail Expansion Plan Team

FROM: *Mike* Mike Martin
Division of Outdoor Recreation

DATE: September 4, 1996

SUBJECT: Draft Expansion Plan

At long last, I present you with a **draft** expansion plan. It is by no means final, but it is something we can all review, evaluate, and improve upon. I would appreciate your suggestions on what sections need more detail, what needs to be expanded upon, etc. Please let me know if there are items which you think do not reflect the direction of the expansion plan team.

There is still quite a bit to be done before we are ready to start implementing the plan. The following is the process I hereby throw out for discussion purposes:

1. Distribute draft plan to Knobstone Trail Expansion Plan Committee (this mailing).
2. Revise draft based upon comments from committee. Goal: October, 1996
3. Distribute second draft and recommend process to complete plan to DNR Executive Staff for review and direction. Goal: November, 1996.
4. Public meeting(s) to introduce the concept to the communities, receive input on expansion plan. *dependent upon department approval*
5. Revise and complete expansion plan based upon public input and Executive Office direction.
6. Select Volunteer Oversight Group for 1997—99 biennium. *dependent upon department approval*
7. Implement expansion plan as resources allow. *dependent upon department approval.*

Any comments, suggestions, other ideas? Please send me any comments you have on the plan draft and the proposed process by September 30. That should allow me time revise the plan and distribute a second draft next month.

Thanks for all of your help in developing this plan. I really do appreciate all of the time and effort you have spent helping with it.



Knobstone Trail Draft Expansion Plan

INTRODUCTION

The concept of developing the Knobstone Trail originated in 1975 when the Division of Outdoor Recreation's Streams and Trails Section reviewed public land ownership patterns for long-distance trail opportunities. The combined blocks of public land making up Clark and Jackson-Washington state forests and the Elk Creek State Fish and Wildlife Area stood out as the best opportunity. Future extension of such a trail seemed possible when looking at additional tracts of public land within Morgan-Monroe and Yellowwood state forests, Brown County State Park, and the Hoosier National Forest.

A gap between Clark State Forest and Elk Creek State Fish and Wildlife Area provided the first obstacle for developing the Knobstone Trail. In 1979, the Indiana General Assembly appropriated \$540,000 for Knobstone Trail land acquisition. Combining that appropriation with money from the federal Land and Water Conservation Fund program, the DNR acquired more than 1,500 acres. Nearly 1,100 acres of that total were purchased from The Nature Conservancy (TNC), which was able to acquire key pieces of land for the trail before the state had appropriated funds for acquisition. Once the DNR had funds, TNC sold the parcels at their cost.

Trail development began in 1980. With assistance from the Young Adult Conservation Corps (YACC), the Deam Lake to New Chapel section of trail opened that year. The trail was extended an additional 9 miles in 1981, reaching the Leota Trailhead. The Wilderness Challenge program provided labor assistance to DNR in 1982, and the trail was built to Elk Creek. In 1987, the Delaney Park Loop was connected to the Knobstone Trail at Spurgeon Hollow, resulting in its current length of 58 miles.

Development and maintenance has been the responsibility of the Division of Outdoor Recreation. A two-person field crew works on the trail (and other assignments) for 180 days each year. The crew is stationed at the Knobstone Trail workshop in Delaney Park.

The following chapters list guidelines which should be followed in acquiring, developing, and managing an expanded Knobstone Trail. The guidelines listed are suggested for sections of the trail on state lands or those coordinated by DNR.

USE

Although allowing multiple uses (hiking, horseback riding, and mountain bicycling) could provide a greater base of support, it would result in higher costs, quicker degradation, and is not desired by hikers. Therefore, the trail should only be open to foot traffic, except where otherwise posted. Management of certain sections of the trail corridor may necessitate short sections of the Knobstone to share its tread with

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other trails open to other uses. This should be dealt with on a case-by-case basis. The Nebo Ridge segment of the Knobstone Trail through the Hoosier National Forest will accommodate bicycle, horse, and foot traffic. This will require special efforts to educate users that the other trail sections are foot traffic only. A Memorandum of Understanding between DNR and HNF can be written to address this need.

Uses on the trail should not conflict with other management objectives within the trail corridor. Hunting will be allowed except where otherwise posted, as determined by property management. Overnight use should be allowed on state properties, except where otherwise posted. KT literature will promote carry in/carry out all trash and "Leave No Trace" ethics of human waste disposal.

More opportunities should be provided for users to register prior to and as they are using the trail. To that end, maps and other trail literature should encourage people to mail their plans to properties or Outdoor Recreation central office; and sign-in areas should be provided near trailheads (possibly similar to hunter check-in stations).

ROUTE ALTERNATIVES

Two general corridors for connecting the trail between Delaney Park and the Hoosier National Forest were considered. Refer to Map C. When comparing the corridors, it is important to remember that they can only be viewed in general terms. Actual trail location can vary widely depending upon which landowners will be interested in making their lands available for acquisition.

The first potential corridor runs from Delaney Park, north across the Muscatatuck River to Starve Hollow State Recreation Area, west to the Jackson County section of Jackson-Washington State Forest, west through Brownstown, and finally northwest to the Hoosier National Forest near Kurtz. The distance following this corridor would approximate 25 miles, roughly 11 miles of it in non-forested terrain. Five miles of this corridor is through publicly-owned lands.

The second potential corridor follows the forested escarpment from Delaney Park to the Hoosier National Forest near Kurtz. This corridor is approximately 29 miles, only two of which are through publicly owned lands. However, nearly all is through forested lands.

Both alternatives would require a great deal of land acquisition. However, the second alternative is preferred because it follows the forested escarpment. Ideally, it would allow the trail to be located in forested lands along the escarpment with which the Knobstone Trail is identified. Routing the trail through Starve Hollow and Brownstown would necessitate a great deal of the trail to be located in open, flat lands.

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The corridor for expanding the Knobstone Trail through the Hoosier National Forest is shown on Map B. As this section will be developed and maintained by the U.S.D.A. Forest Service, it is beyond the scope of this plan. However, it is important to note the points at which the trail will enter and leave the Forest. The Nebo Ridge section of the Knobstone Trail is developed for and open to hiking, horseback riding, and mountain bicycles. It is 8.9 miles in length.

Map A shows the general corridor for the trail through and between Yellowwood State Forest and Morgan–Monroe State Forest. There are several gaps in public ownership along the corridor within each forest and between them. It is possible to make many of the connections using public roads. The corridor through this section is approximately 28 miles in length. Of that total, approximately 17 miles are through publicly owned lands.

TRAIL LOCATION WITHIN THE CORRIDOR

Selection of the actual trail route within the identified corridor must take several factors into consideration. The most important factor is the willingness of landowners to make their land available for trail use and the availability of funds to purchase or lease the lands. Other factors are listed below.

- 1) Non–road routes are highly preferred to routes along roadways. The long term goal should be for no trail on roads. However, small stretches of roadway may be necessary to connect holdings until land and money are available. These stretches should take an hour or less to hike.
- 2) The trail should be located in an area within the corridor that would have the least amount of conflict with adjacent land uses.
- 3) Utilizing already existing trails may cause user conflicts, but would avoid duplication of expense and effort. This should be limited and addressed on a case–by–case basis.
- 4) Adequate access should be provided for the rescue of users.
- 5) Access for maintenance should also be considered in trail location.
- 6) The Knobstone Trail should be predominantly a linear trail. Any loops along the trail should be at the option of the property's managing agency or organization.

TRAIL DESIGN AND CONSTRUCTION

Actual design standards for both the trail and trailheads should be developed with the consensus of affected government agencies, adjacent landowners, and users. Therefore, design for specific sections

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may vary somewhat. However, there are several factors that should be included or addressed for all areas.

Standards for new trail construction should give high priority toward minimizing construction and maintenance. The goal is that the trail will appear inconspicuous and harmonious with the land, yet durable and easily maintained. In general, standards within the *Indiana Trails Construction and Maintenance Manual* should be followed. Where new trail is to be built, the width of the trail should be eighteen inches. Branches and brush should be trimmed to a horizontal clearance of two feet on either side of the trail tread. The vertical clearance should be seven to nine feet. Laying out the trail while considering existing vegetation can help reduce the amount of needed trimming.

Where possible, the trail should follow the topography: steep slopes should be avoided and switchbacks minimized. The use of natural dips to allow water runoff will reduce the need for waterbars. A slight cross slope will also promote water drainage.

To reduce the amount of man-made intrusions to the trail user, signage should be minimal. Signs for rules, regulations, emergency information, a locator map, and other information should be provided at all trailheads. To reduce the number of conflicts, signs for allowable uses should be posted at all trailheads and access roads. To reduce confusion with existing trails, current practice of 2 inch by 6 inch white blazes and "KT" posts will be continued. In areas of concentration of other trails, "KT" posts should be used more frequently. Blazes, or confidence markers, should be painted on trees and spaced so that the next blaze, and only the next blaze, is visible from a marked blaze. In areas where the trail is well delineated and there are no confusing cross roads or trails, the blazes could be spread out so that the next blaze would be visible within 100 feet of a marked tree. Double blazes should be used only at turns where the trail intersects another road or trail; the next blaze in each direction should be visible from the junction.

The administration of trail construction must keep in standing with any appropriate memoranda of understanding. In general, the Division of Outdoor Recreation will oversee all construction activities unless described differently in written agreements. Among the potential funding sources for construction are: Outdoor Recreation's Preventive Maintenance account; Outdoor Recreation's Repair and Rehabilitation account; Land and Water Conservation Fund; ISTEA Enhancements funds; ISTEA National Recreation Trails Trust Funds, and donations. Volunteer efforts in trail construction will fall under the guidelines of the Volunteer Strategy (beginning on page 12).

TRAILHEAD LOCATIONS WITHIN THE CORRIDOR

The trail should include trailheads which allow for good user access. The actual location of the trailheads and distance between them should be judged on a case-by-case basis. However, they should not be

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more than twelve miles apart. This distance would generally be short enough for a one-day hike, yet long enough for an overnight backpacking excursion. However, terrain must be considered: the rougher the terrain the shorter the distance between trailheads. Other items to consider in trailhead location are nearby special interest areas that may attract day hikers and the suitability of attracting local use.

Trailheads should be located away from private lands to avoid conflicts. Trailheads must only be located on suitable soils. To provide alternatives to parking at trailheads for dayhiking, trail maps should identify other parking areas nearby. However, it must clearly state that overnight parking is not allowed at these alternatives.

TRAILHEAD DESIGN

Adequate grade and subgrade must be present to ensure proper drainage of trailhead parking areas. Trailheads should be designed to provide for the needs of the users while minimizing the impacts to surrounding land uses. Design should also be used to address the prevention of illegal use of the trailhead and the trail. For example, small areas for parking prevent them from being used by vehicles with horse trailers. The parking areas should be located within view of public roads to improve the security of parked vehicles.

All trailheads should have surfaced parking for ten vehicles and a Knobstone Trail sign with information on rules and regulations, emergency contact information, and a map. A registration station should be located within one-half mile of each trailhead.

TRAIL MAINTENANCE

The objective for trail maintenance is continuous protection of the resource while enhancing the users' safety, enjoyment, and access. Standards for Knobstone Trail maintenance are those listed in the *Indiana Trails Construction and Maintenance Manual*. Those standards include: keeping vegetation clearance at two feet on each side and seven feet overhead; removing blowdowns that can not be stepped over and are not easy to get around; repairing ruts; and cleaning sediment from waterbars. The trail should be continuously monitored for damages caused by man and by nature. Areas which are being damaged by water erosion must be corrected through improvements such as waterbars, correcting cross slopes, and other techniques. Trail and trailhead signs should be maintained and replaced as needed.

To reduce maintenance necessary from user impacts, *Leave No Trace* standards of human waste disposal and *Carry in Carry Out* standards of trash disposal should be promoted through KT-related literature. This information could also be included in signs at trailheads.

The administration of trail maintenance must keep in standing with any appropriate memoranda of understanding. In general, the Division of Outdoor Recreation will coordinate all maintenance activities

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unless described differently in written agreements. The division's Streams and Trails South Field Crew will continue to be predominantly responsible for Knobstone Trail maintenance. To assist with inter divisional communications, Outdoor Recreation should provide appropriate divisions with South Field Crew annual goals and objectives. The South Field Crew will provide appropriate properties with proposed trail repair work schedule and meet regularly with appropriate property managers.

Volunteers will play a significant role in long term maintenance of the KT. The Volunteer Strategy begins on page 12.

Long-term funding for trail maintenance needs to be ensured. Existing sources of funds for KT maintenance are Outdoor Recreation's Preventive Maintenance account; Outdoor Recreation's Repair and Rehabilitation account; and donations.

ACQUISITION STRATEGY

Intro

The Department of Natural Resources land acquisition for the Knobstone Trail Expansion is dependent upon two things: adequate funding and willing sellers. In order to best use available funds for acquisition, a strategy for identifying and prioritizing lands must be developed. When a landowner is willing to make property available, the department can take steps to acquire them if the funds are available.

Acquisition Methods

To ensure longevity of the trail, some type of acquisition of the corridor is needed. There are three general types of acquisition to be considered: fee simple, trail easement in perpetuity, and lease or trail easement with a term. Acquisition in fee simple results in complete and total ownership of the property. It is generally the most expensive, at least in the short term. However, it is also the easiest to manage.

An easement in perpetuity for trail purposes gives the department the right to use the property for trail purposes forever. The easement owner does not have total control over the property, only those rights which are delineated in the easement document. The property owner retains all other rights, although it may reduce the property's value. Easements may be less expensive than fee simple, although it generally depends upon the ability of the landowner to use the land for other purposes. Easements along property lines may be cheaper than those that would divide a property.

A lease or easement with a term allows temporary use of the property for trail purposes. This may be the least expensive type of acquisition in the short term, but may exceed the others in the long term.

Easement or lease agreements should have basic language that is consistent for each parcel. However,

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some landowners may have specific concerns that would need to be addressed in the agreement language.

Some landowners may be willing to donate property deeds or easements. It is important that any donations are functional for the Knobstone Trail expansion. Those that are not should not be accepted. Donations which limit the state from selling the property in the future should not be accepted unless it is already connected on both sides by public property for trail use.

Because of the relative amounts of control of the property attributed to the acquisition methods, acquisition in fee simple is highly preferred for Knobstone Trail expansion, while term leases or easements would be the least preferred. However, the method as preferred by DNR will need to be blended with the needs and wishes of the landowner and the funding available. Ideally, corridor parcels that are acquired should be a minimum of a quarter-mile in width. This would allow room to place the trail in difficult topography, and would greatly reduce the possibility of conflicts with neighboring landowners. Acquisition should be from willing sellers only.

Non-binding agreements with not-for-profit organization may be considered under the following conditions: none of the above methods can be accomplished; landowner and not-for-profit are able and willing to enter into an agreement; not-for-profit organization assumes responsibility for trail construction and maintenance on all sections with non-binding agreements.

With the 1995 passage of Senate Enrolled Act 571, landowners who allow use of their land for the Knobstone Trail are protected from liability if hikers get hurt while on their land.

Funding for Acquisition

There are several potential sources of funding for acquisition: department funds, direct appropriations from the state legislature, Heritage Trust Fund, Land and Water Conservation Fund, Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) Enhancements, ISTEA National Recreational Trails Fund, and donations.

Under current budget constraints, little money is available in department funds for Knobstone Trail acquisition during the 1995-97 biennium. Getting money budgeted in future biennia is possible, depending upon the economic and political climate. However, it would probably require widespread support within and outside the department. The same can be said for direct appropriations from the legislature as a line-item in the state budget. Even greater support would be needed.

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The Land and Water Conservation Fund is a matching assistance program which provides grants for 50% of the cost for the acquisition and/or the development of outdoor recreation sites and facilities. Funds are provided through the National Park Service, but the program is administered by the department's Division of Outdoor Recreation. The department would pay the full amount and half of it would be returned to the state. Problems have resulted in not being able to direct the reimbursement to the account(s) which were used to make the purchase. In fact, the reimbursement may go to the state general fund and not even to the department. The outlook for LWCF money is poor, as to date no money has been appropriated to the fund by Congress for FY 1996.

The Transportation Enhancement Activities (TEA) program is an 80% matching assistance program from the Federal Highway Administration administered by the Indiana Department of Transportation (INDOT). The federal money, a result of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), is available to government agencies for facilities that will enhance the transportation system. Provision of facilities for pedestrians and bicycles is one of the ten categories eligible for enhancement funds.

The Symms National Recreational Trails Act of 1991 established the National Recreational Trails Trust Fund (NRTTF). Using gasoline taxes collected from vehicles used off roads, the NRTTF has been obligated up to thirty million dollars per year for the fiscal years 1992 through 1997, subject to annual appropriations. However, Congress appropriated only 7.5 million dollars in fiscal year 1992, and 15 million dollars for each of fiscal years 1996 and 1997. The portion of the fund distributed to Indiana is administered by the Department of Natural Resources. By legislation, at least thirty percent of the funds are to be used for non-motorized trails, and at least thirty percent of the funds are to be used for motorized trails. The remaining forty percent is discretionary for diversified trail use.

The Indiana Heritage Trust was created to fund the purchase of natural areas for public use. Funded by the sale of environmental license plates and donations, the money is used for land acquisition. A Project Committee reviews the proposed projects submitted to the Heritage Trust Committee, which in turn recommends approval by the Governor. The Trust Committee members are appointed by the governor and legislative leaders. The divisions of Forestry and Outdoor Recreation each have funds available for appropriate uses, although Outdoor Recreation shares its funds with the Division of State Museum and Historic Sites. There are also discretionary funds available. Assistance from outside sources enhance the possibility of using the discretionary funds.

Potential new sources of funds for land acquisition that might be developed are user fees and voluntary stickers or tags. The voluntary stickers or tags could be administered through the state, which may require legislative action, or by a not-for-profit organization.

Ownership and Management of Acquired Parcels

Assigned ownership and management of any lands acquired for Knobstone Trail expansion may depend upon the type of property and type of acquisition. The Division of Forestry is the most logical option for land management, particularly if the parcel is suitable for forestry uses. Forestry is a land managing division within the DNR, and has the expertise. The trail corridor in the north segment will fall within or adjacent to Yellowwood or Morgan–Monroe state forests. To be suitable for forestry purposes, parcels must be owned in fee simple and should be at least 1,320 feet wide.

Management of narrow corridors not suitable for forestry purposes would fall to the Division of Outdoor Recreation or a not–for–profit corporation. The Division of Outdoor Recreation is typically not a land holding agency. Ownership of these types of parcels could be assigned to the Division of Forestry if the Division of Outdoor Recreation is responsible for managing them. The Division of Outdoor Recreation could work cooperatively with local park and recreation agencies or not–for–profit organizations. Private, not–for–profit ownership of parcels should be considered when DNR ownership is not practical. Management of parcels not acquired in fee simple title could also be managed by not–for–profit corporations. Trail management should be addressed by cooperative agreement.

Width of Corridor

There may not be one certain “ideal” corridor width to consider for acquisition, particularly for parcels that could be managed for multiple purposes. However, a minimum width of 1,320 feet (quarter–mile) is desirable. This would allow some flexibility in the actual layout of the trail. Land topography, vegetation, soils, and location of trail connections at each end may all require that flexibility. Purchasing areas wider than that would reduce the need for an expensive land survey. Less than a quarter–mile width would only be feasible for short distances and should only be acquired as a last resort. In no cases should less than fifty feet be accepted.

Prioritizing Available Lands

Routes away from roads are highly preferred to routes along roadways. The long term goal should be for no trail on roads, though short stretches may be needed to connect holdings. These stretches should take an hour or less to hike. Therefore, land acquisition efforts should be directed toward meeting that goal. Additional land for trailheads may also need to be acquired.

Several factors need to be considered in the land acquisition efforts. Among them:

- a variety of habitats is desirable;
- the trail should be located in a corridor that would have the least amount of conflict with adjacent land uses;

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- the trail should avoid nature preserves; if unavoidable, extreme care must be taken to protect the flora and fauna;
- the trail need not avoid other management uses (i.e. timber, wildlife, etc.), as it can and should be used to educate and interpret about these management activities.
- evaluating property for acquisition should include how it can provide a link and how it will affect design, access, construction, and maintenance.

The key factor in determining properties for acquisition, however, will be the willingness of the landowner to make the land available for Knobstone Trail use.

As funds for acquisition will most often be limited, it is important to prioritize any lands which may be available. There are many factors which need to be considered when comparing available parcels. If the property is to be managed by the Division of Forestry, the following three items will be given high priority:

- inholdings
- adjacent to existing property
- large pieces with multiple-use potential and access

In terms of value for the Knobstone Trail expansion, each of the following items will increase a property's priority:

- has connections to the trail
- provides access to more than one potential route (in uncertain areas)
- provides access for management (i.e.. adjacent to county road)
- located within rapid development areas
- allows longer trail pieces
- is valuable to non-profit conservation organizations
- contains unique natural features
- is located on the Knobstone Escarpment
- has historical value
- has trail hiking features (suitability for camping, trailhead, availability of water)
- is unimproved/undeveloped
- does not contain environmental problems.
- is usable for other DNR purposes

Who Does What

The Division of Outdoor Recreation will coordinate land acquisition activities for Knobstone Trail expansion. The division will collect and maintain a landowner database for properties located within the general expansion corridor. The database is to include the name and address of the landowners and the size of each parcel. Working in cooperation with user groups, the Division of Forestry, and other interested parties, Outdoor Recreation will determine preferred and alternative expansion corridors. These corridors may likely change as acquisition proceeds. Outdoor Recreation will also provide to the Division of Land Acquisition the last deed of record and information regarding land value for each targeted property (those which are high priority and owned by landowners interested in negotiating).

The Division of Forestry will provide information usable to prioritize properties. District or property foresters may be the best suited to make initial contacts with local landowners, especially those landowners with which they have good relationships. The Division of Forestry will also provide to the Division of Land Acquisition timber value information needed for an appraisal.

The Division of Land Acquisition is responsible for all negotiations with landowners and the determination of acquisition type.

Private, not-for-profit organizations will be extremely important in the land acquisition process. They will be needed to assist in funding, by gaining and providing funds directly and encouraging legislators and agencies to appropriate funds for the project. These groups will also need to promote the value of the trail to local interests and landowners. Local members of these organizations may also be best suited to make initial contacts with landowners.

Process for Acquiring Parcels

It is extremely important that an organized process of acquiring properties for Knobstone Trail expansion be coordinated and followed. The following list outlines the steps that must be taken and the order in which the steps must occur.

1. Determine *general* location, a wide corridor allowing flexibility to go different ways.
2. Make contact with landowners during the design phase
 - a. Local people are best suited to make the first contact with a landowner; however, efforts **MUST** be coordinated by Outdoor Recreation. Potential people to make initial contacts are property managers, district foresters, district biologists, other department field staff, and local volunteers.
 - b. The contact should emphasize that there is interest in building a trail in the general area, and asking if the landowner would be interested or amenable to selling or donating property for trail use.

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3. Provide to Land Acquisition the last deed of record and any information on the land value of those properties for which the landowner is interested.
4. Appraisal (arranged by Land Acquisition)
 - a. standard appraisals cost \$1,000—1,500.
 - b. cost per appraisal is often lower when order several at the same time.
 - c. form appraisals cost approximately \$400.
5. Negotiations with landowner undertaken by the Division of Land Acquisition.

A not-for-profit organization could potentially be used as a land trust for areas that would be high priority and the landowner is interested in selling before state funds are available.

Buying options on land parcels may need to be considered until it is determined that pieces can be connected. However, this is an additional cost and should be used sparingly. Acquiring parcels of land that only make trail connections diagonally at corners should be avoided. Finally, it is important that acquired properties have identifiable boundaries, and that acquisition provides sufficient room to account for boundary discrepancies.

VOLUNTEER STRATEGY

The Division of Outdoor Recreation is responsible for overseeing the development and maintenance of the Knobstone Trail on state-owned properties. The burden currently falls on the two-person Streams and Trails South Field Crew, which is employed for 180 days each year. Development of any additional DNR-managed sections of the Knobstone Trail will require either a firm commitment from volunteers to maintain them or additional DNR staff. The department simply does not have the human resources to adequately maintain the Knobstone Trail beyond the existing 58-mile section. In fact, additional assistance on the existing trail is needed in order for the Streams and Trails South Field Crew to work on constructing or improving trail in the Knobstone North segment.

Key to the expansion of the Knobstone Trail, then, is a partnership between the department and a private, not-for-profit organization serving as a Volunteer Oversight Group (VOG). The VOG is needed to coordinate and oversee a volunteer program to assist with maintenance of the existing 58 miles of trail, and development and maintenance of any miles added by expansion.

The VOG will be required to enter into a cooperative agreement with the Department of Natural Resources. The group must be a not-for-profit organization with articles of incorporation filed with the Secretary of State. The VOG will be required to recruit, train, and supervise all volunteers necessary to meet the standards set forth in the agreement. The department would forward to the VOG any groups or individuals that inquire about volunteering on the trail. The VOG must provide assistance for the entire

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trail, and provide documentation on the number of volunteer hours and funds expended to execute the agreement.

The DNR Division of Outdoor Recreation will provide the VOG with development and maintenance standards, and will be responsible for ensuring the standards are met. The division can also assist in training the VOG's leaders in trail construction and maintenance, while the VOG would then train its volunteers. The department could assist in providing some training materials and other technical assistance.

The Volunteer Oversight Group could be an existing not-for-profit organization. It would then recruit other organizations interested in volunteering and coordinate their efforts. A second possibility is that the VOG could form from among several organizations that are currently involved with or interested in volunteering on the Knobstone Trail. The new VOG could include a Board of Directors comprised of representatives from each participating organization.

The following outlines the responsibilities for both the Department of Natural Resources and the Volunteer Oversight Group.

Department of Natural Resources Responsibilities

A. In-House Coordination

1. Headed by Outdoor Recreation
2. Follow all Memoranda of Understanding
3. Properties to help identify critical areas that need immediate attention

B. Provide to Potential Volunteer Oversight Groups

1. Standards for trail construction and maintenance
2. Expansion plan
3. Estimate of person-hours needed for trail maintenance and trail construction
4. List of expectations of VOG
5. List of assistance which can be provided to VOG

C. Select Volunteer Oversight Group

1. Based upon review and approval of written proposal
2. Sign Cooperative Agreement for 2 years, corresponding to state budget biennium

D. Provide to Selected Volunteer Oversight Group

1. Standards for construction and maintenance, updated as needed

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2. Hands-on training for group leaders
3. Information on potential volunteers (individuals and groups)
4. Materials as budget allows
5. Instructions for non-standard situations
6. Monitoring adherence to group's cooperative agreement, Quality Control

Volunteer Oversight Group Responsibilities

A. Written Proposal

1. Evidence of non-profit organization, with Articles of Incorporation
2. Membership development
3. Strategy to recruit volunteers needed
4. Strategy for maintaining entire trail (existing and expansion)
5. Strategy to train volunteers
6. Willingness to provide documentation on all KT-related activities (hours, dollars)
7. Willingness to sign cooperative agreement for 2 years
8. Strategy to use volunteers not affiliated with the group
9. Strategy to bring other groups into the program.

B. Trail Maintenance

1. Recruit and utilize volunteers
2. Train volunteers
3. Ensure trail maintenance standards are followed
4. Document activities, hours and materials by trail section
5. Monitor trail conditions

COSTS TO DNR

The additional costs to the Department of Natural Resources for expanding the Knobstone Trail can be categorized into three areas: human services, equipment and materials, and land acquisition. All estimated costs are in addition to current costs pertaining to management of the existing 58 miles of trail. All estimates are absolute minimums that would be necessary.

A. Human Services

The department's costs for human services will depend upon the existence of a Volunteer Oversight Group. Two alternatives are presented, one with a VOG and another without a VOG.

1. DNR working in cooperation with a Volunteer Oversight Group which takes full and complete responsibility for development and maintenance of existing and all north KT.

a. No additional personnel costs would be incurred. The Streams and Trails South Field Crew would be responsible for the following activities:

- training of VOG leaders
- monitor trail development and conditions
- provide assistance to VOG for major projects

ideally: add two intermittents, even with VOG

2. DNR committing to do all construction and maintenance with limited assistance from volunteers.

a. Minimum two intermittent laborer positions for a north section field crew

- $\$8.25/\text{hour} \times 7.5 \text{ hours/day} \times 180 \text{ days/year} \times 2 = \$22,275/\text{year}$

Ideally: add four intermittents and One PAT or LTC position to oversee all Knobstone Trail related activities:

- *coordination with properties*
- *supervision of intermittent field crew personnel*
- *coordination with central office staff*
- *promote and oversee landowner relations*
- *landowner contacts for acquisition*
- *public relations*
- *implementation of expansion plan*
- *management of KT database on GIS*
- *monitor trail development and conditions}*

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- provide assistance to VOG for major projects

ideally: add two intermittents, even with VOG

2. DNR committing to do all construction and maintenance with limited assistance from volunteers.

a. Minimum two intermittent laborer positions for a north section field crew

- $\$8.25/\text{hour} \times 7.5 \text{ hours/day} \times 180 \text{ days/year} \times 2 = \$22,275/\text{year}$

Ideally: add four intermittents and One PAT or LTC position to oversee all Knobstone Trail related activities:

- *coordination with properties*
- *supervision of intermittent field crew personnel*
- *coordination with central office staff*
- *promote and oversee landowner relations*
- *landowner contacts for acquisition*
- *public relations*
- *implementation of expansion plan*
- *management of KT database on GIS*
- *monitor trail development and conditions}*

B. Equipment and Materials

1. DNR working in cooperation with a Volunteer Oversight Group which takes full and complete responsibility for development and maintenance of existing and all north KT.

- gravel for trailheads: \$10,000
- signs: 3,000
- materials for erosion control structures: 5,000
- *ideally: Workshop, tools, vehicle and equipment for north section field crew: 40,000*

2. DNR committing to do all construction and maintenance with limited assistance from volunteers.

- gravel for trailheads: \$10,000
- signs: 3,000
- materials for erosion control structures: 5,000
- Workshop, tools, vehicle and equipment for north section field crew: \$40,000
- *ideally: Vehicle, portable computer, and office equipment for KT coordinator: 30,000*

C. Land Acquisition

1. ALTERNATIVE 1: Acquire in fee simple 38 miles of trail corridor in 40-acre plots (6,080 acres), assuming \$1,000/acre. Forty acre plots would equal quarter-mile wide sections and allow the land to be managed for forestry purposes in addition to recreation. It would also allow flexibility in actual trail location, a necessity when dealing with willing sellers only.

TOTAL COST ALTERNATIVE 1: \$6,080,000

2. ALTERNATIVE 2: Acquire in fee simple or easements 38 miles of trail corridor in 1,000 foot widths (4,606 acres), assuming \$500/acre. This would not allow any flexibility in trail location and would restrict management of the corridor to recreation only. Easements are relatively expensive for the rights gained, compared to fee simple acquisitions.

TOTAL COST ALTERNATIVE 2: \$2,303,030

3. Actual acquisition would probably involve a combination of the two alternatives, and perhaps will include some donations or purchases below market value. Reasonable estimate for land acquisition could be \$5 million.

LABOR ESTIMATES

The following table lists estimated labor hours needed for common trail construction and maintenance tasks. Actual time will vary based upon a number of factors: experience of laborers, number and types of

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tools available, weather, etc. Assumptions included in these estimates are that adequate tools are used, weather is favorable, and the labor is experienced.

Labor Estimates for Backcountry Trail Construction and Maintenance

Trail Activity	Units	Favorable Site	Average Site	Difficult Site	Notes
Trail clearing	hours per quarter-mile of trail	6 hours	8 hours	12 hours	brush cutting stump removal tree pruning
Install step	minutes per step	10 minutes	15 minutes	25 minutes	cut soil, lay 2-3 foot timber or log step, secure with two rebar stakes, level soil
Install waterbar	minutes per waterbar	20 minutes	35 minutes	50 minutes	cut soil, lay 4-8 timber or log, secure with 3-4 rebar stakes; level soil.
In-cutting	minutes per 10-foot section	20 minutes	30 minutes	40 minutes	cut and fill soil on hillside trail
Install cribbing	minutes per 10-foot section	30 minutes	45 minutes	60 minutes	lay one or more section of 10-foot timber or log, secure with 4 rebar stakes, backfill.
Remove blowdown	minutes per average blowdown	40 minutes	60 minutes	90 minutes	cut and remove timber obstructing trail passage
Construct drainage ditch	minutes per 6-foot section	10 minutes	15 minutes	20 minutes	dig trench 6 inches deep by 6 inches wide

These estimates do not include transportation time for workers and materials to worksite.

INTERAGENCY COOPERATION

The Department of Natural Resources' divisions of Forestry and Outdoor Recreation had an informal agreement on management of the Knobstone Trail. The trail is located on predominately Division of Forestry lands. The Division of Outdoor Recreation is responsible for developing, managing, and maintaining the trail. The informal agreement was formalized in 1994, with both divisions signing a Memorandum of Understanding on Knobstone Trail Management. That MOU is found in Appendix XX.

Future development of the KT on Division of Forestry lands will fall under the parameters of the MOU. However, the MOU may need to be amended to address issues related to acquiring additional lands.

The USDA Forest Service has agreed, again informally, to work cooperatively with the Department of Natural Resources. The agreement is that the Hoosier National Forest will be responsible for developing and maintaining those sections of the Knobstone Trail which traverse their lands. In fact, the Nebo Ridge section of the KT has already been constructed and opened in 1995. This section of trail on the forest is open to horseback riders and mountain bikes, in addition to hikers. Because this is different than any other section of the Knobstone Trail, special care will need to be made to prevent horses and bicycles from continuing on the other sections. The informal agreement with the Forest Service needs to be formalized with a Cooperative Agreement.

The US Army Corps of Engineers owns, and the DNR's Division of State Parks and Reservoirs manages land adjacent to the Hoosier National Forest and Yellowwood State Forest. Although the trail will probably not cross their lands, both agencies must be kept aware of trail developments in that area.

IMPLEMENTATION SCHEDULE

The magnitude of expanding the Knobstone Trail from Delaney Park to Morgan-Monroe State Forest requires prioritizing expansion activities. For this purpose, the potential expansion has been divided into two segments. The north segment extends from Morgan-Monroe State Forest south to Blind Horse Hollow. The central segment extends from Blind Horse Hollow to Delaney Park. Knobstone Trail south will be considered the existing section from Deam Lake State Recreation Area to Delaney Park.

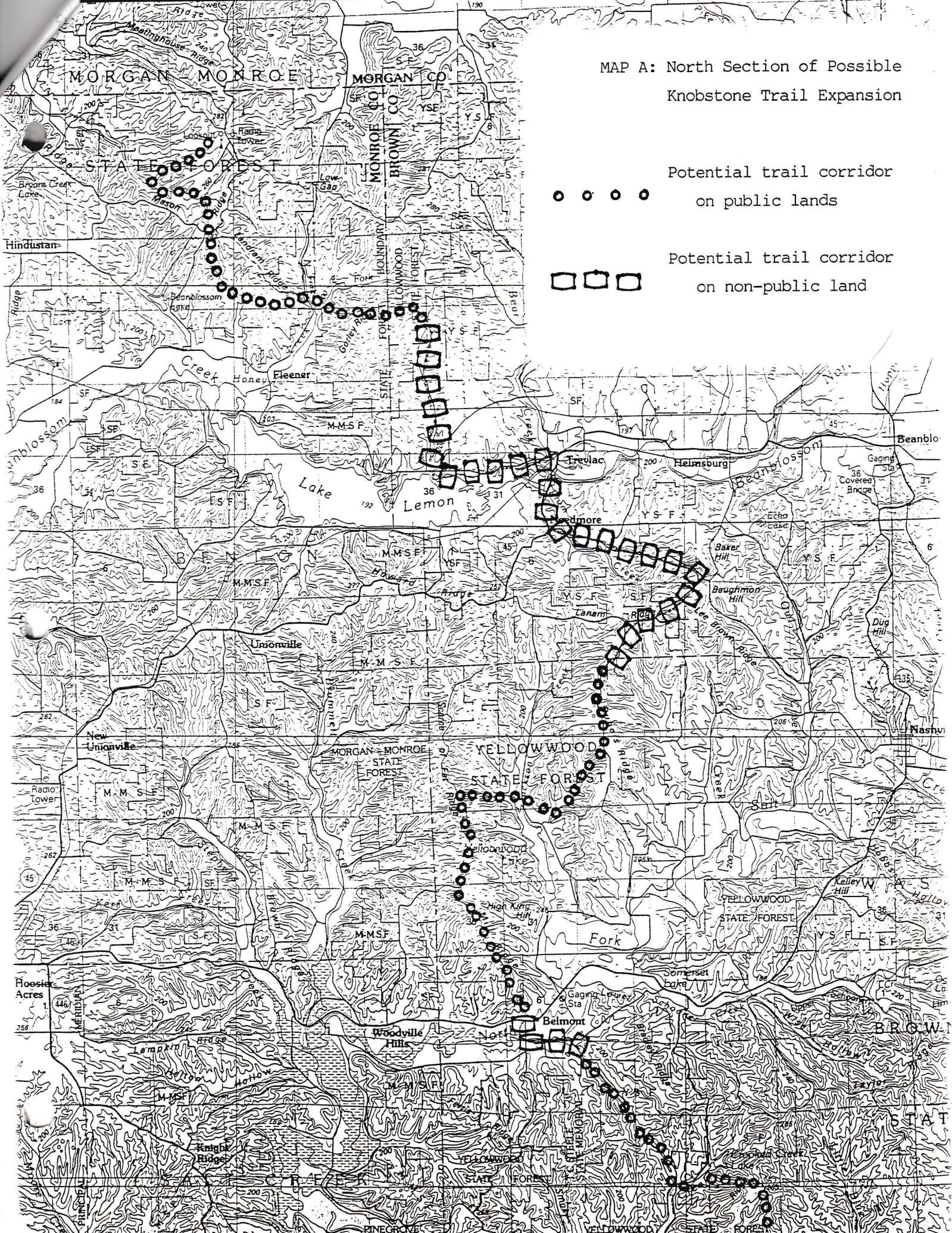
In general, the north segment will be of higher priority than the central segment. The north segment includes many miles of existing state property. The central segment falls within an area which contains virtually no public lands. Therefore, land acquisition from willing sellers will take considerably more time.

MAP A: North Section of Possible Knobstone Trail Expansion

Potential trail corridor
on public lands



Potential trail corridor
on non-public land



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The recommended series of actions to implement this plan is listed below.

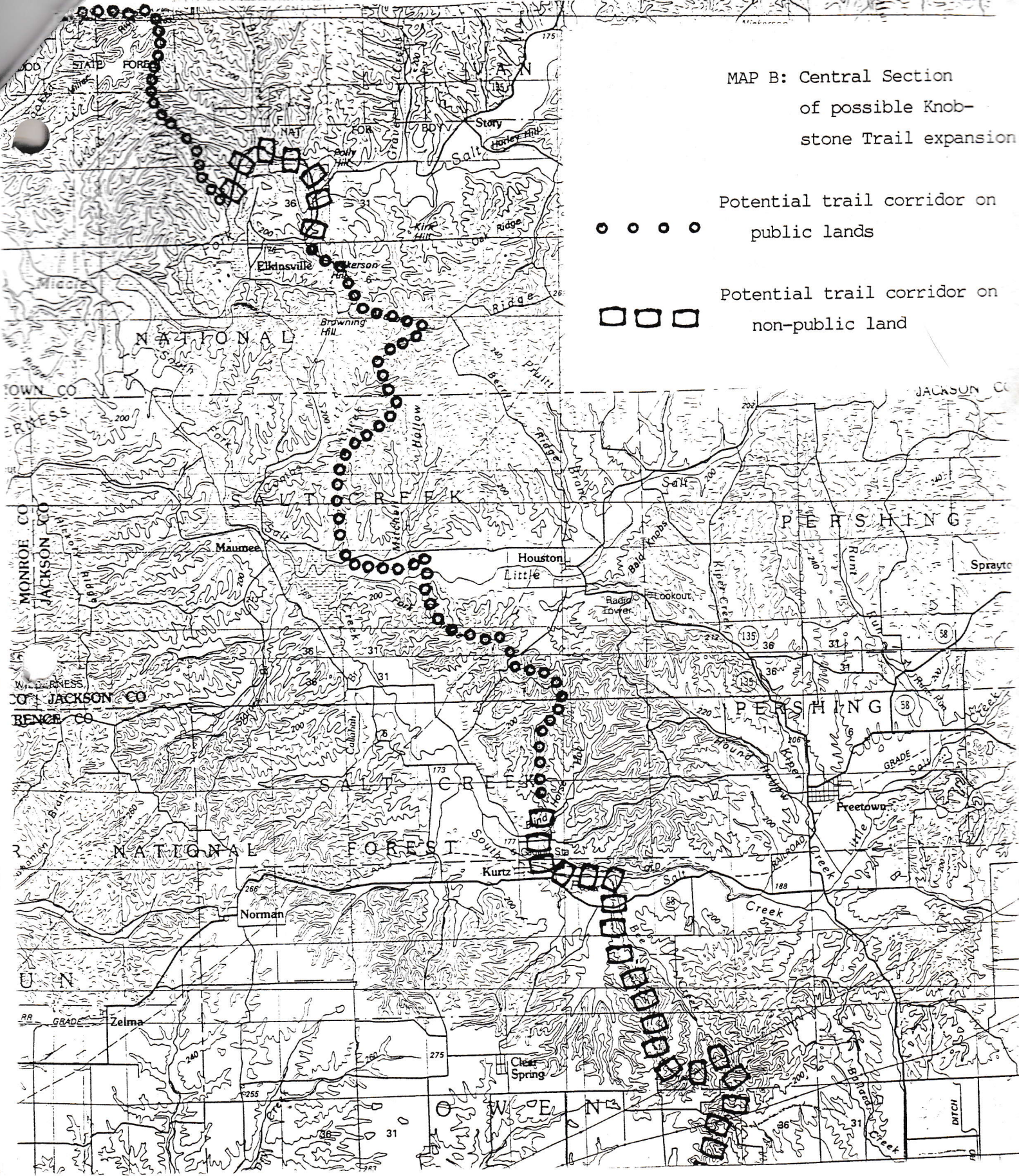
- 1) Identify best routes possible in north (Blind Horse Hollow through Morgan–Monroe State Forest) and central (Delaney Park to Blind Horse Hollow) segments.
- 2) Identify alternatives for connections in north segment, using roads as a last resort alternative.
- 3) Request proposals from potential Volunteer Oversight Group.
- 4) Begin negotiations for acquisition of desired parcels in north segment.
- 5) Select and sign agreement with Volunteer Oversight Group.
- 6) Begin construction of north segments located on public property.
- 7) Acquire needed parcels from willing owners as possible in north segment.
- 8) Open north segment as staff/volunteers are available and connections are made.
- 9) Begin attempts to acquire needed tracts in central segment.

MAP B: Central Section
of possible Knob-
stone Trail expansion

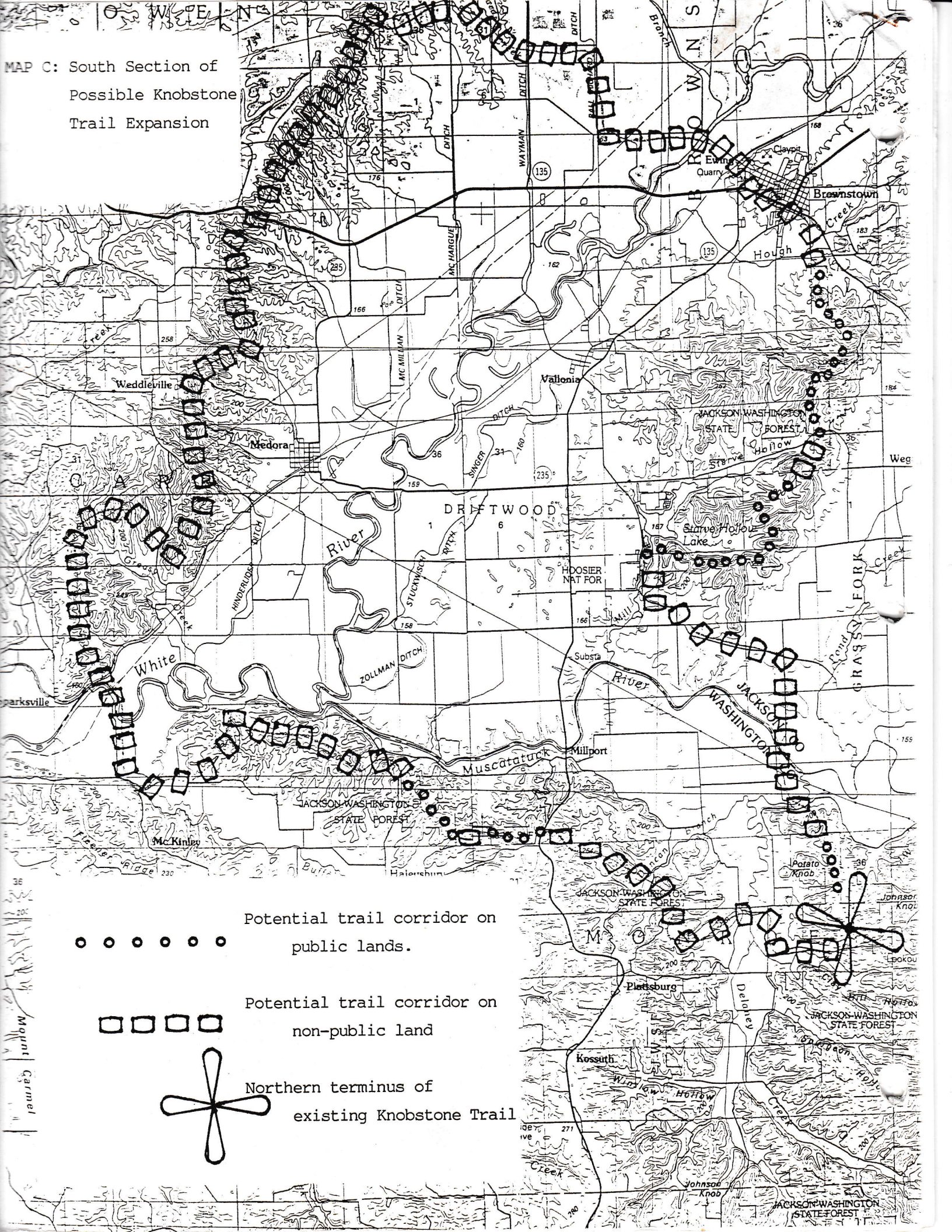
Potential trail corridor on
public lands



Potential trail corridor on
non-public land



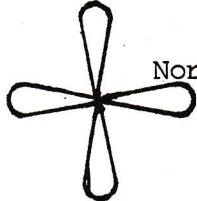
MAP C: South Section of
Possible Knobstone
Trail Expansion



Potential trail corridor on public lands.



Potential trail corridor on non-public land



Northern terminus of existing Knobstone Trail

Mogunt
Carmel