

ABSTRACT: Border-to-Border Trail Study

Key objectives: This study provides various tools for policy makers and elected officials to evaluate trail proposals while promoting dialogue between similar trail interests. It documents the size, distribution, potential for growth, desires and needs of Minnesota's motorized and non-motorized trail users; the present status of Minnesota's abandoned railroad grades; and includes a statewide inventory and map of off-road trails as well as an integrated inventory of current local, regional and federal trail proposals. Of special note is the application of a geographic information system (GIS) database to store much of this information and the capability of a GIS to generate unique analysis maps. These evaluation tools will serve as a framework for future trail partnerships and investments regionally and statewide.

Overall results: The report, *Profiles of Nine Trail User Populations*, describes the various segments that occur within user groups and what their specific needs and desires are in regards to trails. Clearly, many differences in use patterns emerge among user groups, but striking similarities exist between user groups when user motivations and perceived benefits are considered.

A database and GIS coverage of railroad abandonments has been created. The database consists of 287 records, starting with the first known abandonment in 1888. Of these records, 193 have been mapped in a GIS coverage. The total length of abandonments mapped in GIS is 3,935.97 miles. In some cases, an acceptable map of the alignment could not be located, thus mapping it in GIS was not favorable.

The "trail map" is really a GIS coverage of existing trails. At this time, a total of approximately 18,846 miles of trails have been mapped in GIS by the DNR Trails & Waterways Unit. The comprehensive trail listing consists of 972 records that can be associated with the "trail map" to provide information about each trail.

A total of 296 proposals have been mapped in GIS coverages and included in a database. Proposal information came from the 1997-1999 applications to the DNR's grant programs and other programs where information could be obtained.

The Minnesota Recreational Trail Users Association provided insight and information regarding each of the nine trail user group's trail interests and goals using data from the Study.

A full report of the entire Study has been prepared, which includes printouts of the databases and sample maps of the GIS data. The *Border-to-Border Trail Study Report* is 303 pages.

Project use and dissemination: The information can be used to strengthen discussions and help guide policy makers, elected officials and other trail advocates to make more informed decisions or endorsements regarding recreational trails. The information and data alone are not lists of priorities or end recommendations. The final report produced by this project will be distributed statewide to trail advocacy groups, local units of government, legislators, select state and federal offices, and other concerned with the development of trails.

Date of Work Program Approval:
Project Completion Date: June 30, 1999

LCMR Work Program 1997

I. PROJECT TITLE: Border-to-Border Trail Study

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Total Biennial Project Budget:	\$ LCMR:	\$ 100,000
	<u>\$LCMR Amount Spent:</u>	\$ ~ 85,500 (estimated figure)
	= \$ LCMR Balance:	\$ ~ 14,500

A. Legal Citation: ML 1997, Chap. 216, Sec. 15, Subd. 4(d)

Appropriation Language: This appropriation is from the Future Resources Fund to the Commissioner of natural resources for the Border-to-Border Trail Study of the Trails and Waterways Division. The Border-to-Border Trail Study shall inventory and integrate local, regional, and state trail systems and plan for future development, including identifying abandoned rail lines and dual treadways. The Minnesota Recreational Trail Users Association (MRTUA) shall serve as the advisory group to the Department of Natural Resources in developing the study and plan. The appropriation is available until June 30, 1999.

II. PROJECT SUMMARY AND RESULTS: Trails are increasingly popular within Minnesota and are being funded at all levels of government. It seems that as each trail is developed, more interest and demand for longer distance trail opportunities and connections to existing trails surface. This study will provide various tools for policy makers and elected officials to evaluate trail proposals while promoting dialogue between similar trail interests. This study will document the size, distribution, potential for growth, desires and needs of Minnesota's motorized and non-motorized trail users, document the present status of Minnesota's abandoned railroad grades, produce a statewide inventory and map of long-distance off-road trails as well as an integrated inventory of current local, regional and federal trail proposals. Of special note is the application of a geographic information system (GIS) database to store much of this information and the capability of a GIS to generate unique analysis maps. These evaluation tools will serve as a framework for future trail partnerships and investments regionally and statewide.

III. PROGRESS SUMMARY:

IV. OUTLINE OF PROJECT RESULTS:

- **Result 1: *Trail user profiles.*** Primarily using existing research, this study will document the size, distribution, potential for growth, desires and needs of Minnesota's motorized and non-motorized trail users. Previous studies at the state and local level, consumer marketing research, and national public opinion polling will primarily provide a consistent series of descriptions of bicyclists, cross country skiers, hikers, horse back riders, in-line skaters, off highway (4x4) enthusiasts, motorcyclists, users of all terrain vehicles, and snowmobiles. Limited new research will be necessary to fill in information voids across the spectrum of these nine trail uses.

Budget: \$15,000 Expenditures: \$15,000 Balance: \$0

Completion Date: June 30, 1998

- 1A. Status - December 1, 1997: A person has been hired to coordinate the Border to Border Study. A Request For Proposals (RFP) has been drafted and is undergoing editing and revisions for this portion of the study. The RFP is planned to be posted no later than January 2, 1998.
- 1B. Status - July 1, 1998: The RFP was published in the January 5 issue of the State Register (Volume 22, Number 27; pages 1177-1179). We received five proposals which were reviewed and discussed among six DNR staff and came to a decision to hire Recreation Professionals, Inc. A contract was written and agreed to by Recreation Professional, Inc. and work began on this project as soon as the contract was approved. At this time, research has been completed and a draft of the final report is being reviewed by several DNR staff. Recreation Professionals, Inc. is scheduled to present the final report to DNR staff on July 6, 1998.
- 1C. Status - December 31, 1998: Completed. Copies of the report have been distributed to DNR staff (Trails and Waterways Regional and Area Supervisors, Central Office staff, and others by request), to MRTUA Board members, to LCMR staff, and to others upon request.
- 1D. Status - July 1, 1999: Completed. The report submitted by Recreation Professionals, Inc. is discussed and attached in the *Border-to-Border Trail Study Report*, the reference document.

- **Result 2: *An assessment of Minnesota's formerly abandoned railroads for use as trail alignments, and an inventory of existing and historic corridors.*** As the pace of railroad abandonment slows in Minnesota, trail advocates are increasingly interested in the potential of previously abandoned grades to serve their trail interests. Once a railroad grade is formally abandoned through the process administered by the Interstate Commerce Commission, a railroad is given federal permission to dispose of that line. These grades are then sold off based on the presence (or absence) of motivated buyers, and bridges and other structures are evaluated for their salvage value. To varying degrees these previously abandoned grades retain potential to serve as trails. In addition, this result will update trail advocates and other trail interests as to the current status of Minnesota's existing railroads and their potential for abandonment, the location

of major power lines and pipelines and other privately acquired linear rights-of-way, and the location historic military roads and other significant travel-ways. This information will be displayed primarily with maps that will utilize much of this information storage within a GIS.

Budget: \$13,500 Expenditures: \$11,000 Balance: \$2,500
Completion Date: June 30, 1998

- 2A. Status - December 1, 1997: General information and data about Minnesota's past and present railways is being collected from existing publications. Later this month, a concentrated effort will be initiated to gather information from the Minnesota Department of Transportation (Mn/DOT) and the various railway companies that operate in the state.
- 2B. Status - July 1, 1998: At this time, all of the known abandonments in the state since 1930 have been entered into a GIS coverage. A coverage showing which abandonments are already being utilized as trail corridors has also been created. More research on the status of these abandonments needs to be collected. Some information has been documented, but has not yet been associated with the GIS coverage. Information and status of lands associated with power lines and military roads also needs further research.
- 2C. Status - December 31, 1998: Continuing to find more information about abandonments - will be on-going throughout the remainder of the Border-to-Border Trail Study to keep this up-to-date as time allows.
- 2D. **Status - July 1, 1999:** Completed. Known abandonments of commercial lines have been documented in a database format. This database consists of 287 records, starting with the first known abandonment in 1888. Of these records, 193 (67%) have been mapped in a GIS coverage. The total length of abandonments mapped in GIS is 3,935.97 miles. The abandonments that were not mapped mainly include abandonments prior to 1930 or those of short length, generally less than a mile long and/or abandonments located within city limits or rail yards. In some cases, an acceptable map of the alignment could not be located, thus mapping it in GIS was not favorable.

The most difficult information to obtain was the status and land ownership of the abandoned corridors. A 1997 report documented in very approximate ways the extent of remaining corporate ownership on railroad grades that were previously abandoned. In general, the older abandonments have been sporadically sold off, while more recent abandonments were likely purchased intact for some public purpose.

Information regarding power and utility lines was obtained from Minnesota Power and Northern States Power (NSP). NSP provided a set of maps based on the MN-DOT county sheet system. These maps show general alignments, they are not precise. Since the maps provided by NSP are so general and not detailed, it was decided to use the hard copy maps as a reference and not attempt to create a GIS coverage of those lines. A digital coverage of utility lines from TIGER Data is available (TIGER stands for "Topologically Integrated Geographic Encoding and Referencing," which is the name for the system and digital database developed at the U.S. Census Bureau). However, the scale is so large that looking at the coverage from any closer than at a statewide scale will provide too much error in location to be of any significant value for planning. Obtaining information at the local level will be necessary for any local planning objectives.

Information regarding land ownership or status can and should be updated as new information becomes known or as further research is conducted. Other future changes to the database may include incorporating trail information for trails that are located along such corridors. This could be kept basic with just a trail name and trail uses which then could be merged with the trail listing database (project 4 below) to get all the trail information documented if desired.

The significance of this work is that it can provide another level of information for trail planning or rail-trail and corridor interests. The GIS coverage of abandoned rail alignments can be used with trail layers or any other GIS layer to produce unique maps based on specific needs or interests. While working on this project, several requests were made for the map showing the locations of abandonments as well as requests for general information about abandonments and the abandonment process.

In the future, MnDOT and the DNR will need to continue to communicate and share information regarding abandonments and their status as changes occur or become known. Updates to the database and map could be made once a year or as needed and as staff time is available. Railroad abandonment information has been a part of the "Cooperative Trail Development Series" for several years and will continue to be as long as it is requested. Also, future time could be spent on combining the existing trails with the abandonments so that rail-trails may be easily found or identified. It is also hoped that this information, both the database and map, will be available on the DNR Website in the near future.

Please refer to the reference document, *Border-to-Border Trail Study Report*, for a more detailed discussion. A printout of the database and sample maps showing the locations of the abandonments is included in Appendix B of the reference document.

- **Result 3: A map showing the location of Minnesota's linear off-road trails.** Existing trails outside of park boundaries are increasingly viewed by trail advocates as foundation segments of long distance trail systems potentially spanning Minnesota's border. The map will be based on a geographic information system (GIS) trail data base that will track trail uses within specific trail segments and be developed as part of this study and will document the achievements of local units of government and state agencies to develop multi-use rail-trails, single-use motorized grant-in-aid trails, and other linear trails.

Budget: \$15,000 Expenditures: \$14,000 Balance: \$1,000

Completion Date: January 1, 1999

- 3A. Status - December 1, 1997: A relationship with Mn/DOT and the Metropolitan Council has been established to jointly collect trail information from throughout the state. Strategies are being finalized for efficient and accurate collection of trail information that each agency requires. A survey is planned and an instrument is being developed that will be sent to appropriate land managers and administrators throughout the state. Information from this survey will also be used for Results 4 and 5 (below) of this project.
- 3B. Status - July 1, 1998: The response to the survey is about 48% to date, however some of the trail information that was submitted was for shorter trails, not necessarily all long distance trails. The actual mapping of the trail information from the survey will begin soon. Strategies on how to map some of the more complicated trails with multiple uses are being discussed

and once an acceptable format has been established, the mapping will begin. Once the map is completed, a selection of trails that fit the definition of a long distance trail can be sorted out by the measure length of the arcs in the GIS coverage.

3C. Status - December 31, 1998: A great majority of the trail information has been mapped into a GIS coverage. The few exceptions include known trails which a more detailed map is needed in order to be put into the GIS coverage. This information is being collected and trail alignments will be mapped as information is provided. During December, Regional and Area Trails and Waterways staff reviewed the trail maps with the project coordinator and pointed out additional trails that were missing from the trail coverages and changes in certain alignments. Editing of the GIS trail coverages is in progress and will continue through January, possibly into February before being completed.

3D. Status - July 1, 1999: Completed. As a result of this project, an additional 1,960 miles of trails were mapped in GIS. At this time, a total of approximately 18,846 miles of trails have been mapped in GIS by the DNR Trails & Waterways Unit.

Because the responses to the surveys that were sent out did not include much overlap of trail information within counties, we can only be skeptical that this effort has information on all trails. It is believed that the information is the best it could be at this time, but it also should be realized that the data can improve over time. As people use the information, they may spot omissions or errors which they could theoretically report to someone at the DNR who then could take appropriate actions to improve the data. This information will provide a solid base from which to build and improve upon for future use.

This GIS coverage of trails is defined by the comprehensive trail listing. The attributes of the trails are stored in a database (see result 4 below) which is then associated or attached to the linear data of the GIS coverage. Results 3 and 4 herein work together to provide the needed information to create unique maps or to do any analysis of the mapped trails.

Please refer to the reference document, *Border-to-Border Trail Study Report*, for a more detailed discussion of this result. Several sample maps of the trails mapped in GIS are included in Appendix D of the reference document.

- **Result 4: A listing of all trails within Minnesota.** Complementing relatively long-distance linear trails, locally significant trails abound within Minnesota's municipalities and local parks. This inventory will be a comprehensive listing of all of Minnesota's trails. This information will document the distribution of opportunities statewide for all nine motorized and non-motorized trail user groups, allow the identification of inconsistencies of service between and amongst trail user types, and inform local trail investment decisions.

Budget: \$30,000 Expenditures: \$27,000 Balance: \$3,000

Completion Date: June 30, 1998

4A. Status - December 1, 1997: The survey being developed for Result 3 (above) will also inform this listing of trails.

4B. Status - July 1, 1998: From the survey responses, a database of trails has been created which will then be associated with the trail map that will be generated for Result 3. Specific

information about each trail was asked in the survey. This information was documented in the database. The trail length will not be included in this trail listing since the length of the trail will be calculated from the map coverages that will be created later this year. Trail information was collected from several other sources as well in order to ensure a more complete listing. The finalized version of this listing is being edited at this time and should be ready to publish by August, 1998.

- 4C. **Status - December 31, 1998:** As the GIS trail coverage is edited (result #3), the trail listing also needs to be edited. All counties, with the exception of the seven-county metro area, have been surveyed for trails. Frequent communications with the Met Council concerning metro trails and related information will continue throughout the remainder of the project or until final data is shared. Editing will continue as needed and as time allows.

- 4D. **Status - July 1, 1999:** Completed. The Comprehensive Trail listing consists of trail information for trails in greater Minnesota. The seven-county metropolitan area was not included in the survey of trails for the Border-to-Border Trail Study (the survey is mentioned above and in result 3). The Metropolitan Council is completing the inventory of trails for the metro area. The data/information (attributes) collected by the Met Council will be similar to what was collected for greater Minnesota, so these databases will be able to be easily linked together for a more complete picture once all the data is available.

The comprehensive trail listing consists of 972 records. These records were entered based upon county, meaning that there are duplicate or multiple entries for trails that traverse more than one county. If a trail is located in two counties, it will be listed under each county. If a trail surface changes anywhere on the trail, that also constitutes another entry. This was done to ensure more accuracy when looking for a particular trail opportunity based upon user-type, surface type and/or location. This database can be confusing because of all the overlap that occurs with multi-use trails and trails with multiple administrators, but it will ultimately provide more accurate information for specific requests, especially when used with the GIS coverages of trails (result 3 above).

The comprehensive trail listing will continue to grow as more information becomes known and available. This includes incorporating the metropolitan data that is currently being collected by the Metropolitan Council. As trails continue to be built and improved, such information will need to be updated in the database to be able to provide the best information possible when it is needed or requested.

Please refer to the reference document, *Border-to-Border Trail Study Report*, for a more detailed discussion of this result. The list of field headings and their definitions along with a printout of the database is included in Appendix C of the reference document.

- **Result 5: *A map displaying funded and unfunded trail proposals.*** Because trail advocates have a number of funding sources to turn to, trail advocates, trail administrators and elected officials may not be aware of parallel trail efforts in a given location or area. This map will rely on a GIS data base and will include a current listing of proposals from the following sources: recent (post 1990) trail plans developed by counties and metropolitan planning organizations (including the Metropolitan Council), ISTE A Enhancement applications to the Area Transportation Partnerships, LCMR as a whole, legislative

proposals, Cooperative Trail Grant Program applicants, Regional Trail Initiative Program applicants, and the National Recreation Trail Fund Program applicants. By integrating this information and making it public, a new level of trail coordination may be possible. This information will more fully inform trail administrators and elected officials on the impact of various funding decisions and provide networking opportunities between trail interests.

Budget: \$17,500 Expenditures: \$13,500 Balance: \$4,000

Completion Date: April 30, 1999

- 5A. Status - December 1, 1997: No progress on this product has been made to date. However, some of the information collected from the survey mentioned in Results 3 and 4 above may pertain to this portion of the study as well.
- 5B: Status - July 1, 1998: Work has begun on mapping grant proposals. GIS coverages will be made for each of the different grants available and a system of keeping track of funded versus non-funded trails is being developed.
- 5C. Status - December 31, 1998: Still in progress. Many trail proposals have been mapped to date.
- 5D. **Status - July 1, 1999:** Completed. A total of 296 proposals have been mapped and included in a database. Proposal information came from the 1997-1999 applications to the DNR's Regional Trail Program (REG), Local Trail Connections (previously the Cooperative Trail Linkage Program, COOP) and National Recreation Trail Program (NRTP). Where information could be obtained, Intermodal Surface Transportation Enhancement Act (ISTEA/TEA-21) applications were also included (not all unfunded applications from previous years could be located).

The applications include maps of the proposals which were entered into a GIS coverage, as both point and arc data. This was done since many of the proposals are short or include improvements to existing trails, thus the arc is not seen when looking at a map of the statewide proposals. The information about each proposal is stored in databases that can be associated with the GIS coverages. MnDOT representatives provided as much information and data as they could for ISTEA and TEA-21 applications, although only a few applications from the past were located.

Information taken directly from grant applications are referred to as "official proposals," where as those which were submitted by county contacts from the survey that was sent out to gather existing trail information (for trail listing and map) and have not yet been submitted for funding through any program are referred to as "wish lists." Information regarding authorized state trails was also included. The authorized trails included in this project are those that have not yet been developed, but exist in state Statute.

Please refer to the reference document, *Border-to-Border Trail Study Report*, for a more detailed discussion of this result. A printout of the proposed trails databases along with a sample map of the proposal locations is included in Appendix E of the reference document.

- **Result 6:** ***A limited evaluation of statewide trail acquisition and trail opportunities identified in this study by MRTUA.*** There are many ways to use the information in this study depending on one's perspective. Trail administrators, and elected officials will employ elements of this study as appropriate to inform their decisions depending on the scope of their local or statewide authority. This particular product will give a voice to each of the state's trail user groups and therefore represent one application of the data. MRTUA serves as the State's official trail advisory board for the National Recreation Trail Fund to the DNR. It is composed of representatives from organizations from all nine motorized and non-motorized trail user groups.

Budget: \$9,000 Expenditures: \$5,000 Balance: \$4,000

Completion Date: June 30, 1999

- 6A. Status - December 1, 1997: No progress has been made on this product to date.
- 6B. Status - July 1, 1998: MRTUA members have been informed and updated periodically on the status of the Border to Border Trail Study.
- 6C. Status - December 31, 1998: Continuing with periodic updates. A spring conference is being planned that will include some time focused on the Border-to-Border Trail Study.
- 6D. **Status - July 1, 1999:** Completed. On April 18, a workshop for MRTUA board members was held to distribute the Study results to date. The information they received included database printouts and numerous maps showing different scenarios of the trail data and GIS information. All parts of the data were explained in detail to the group. The group was then asked to begin their assessment or evaluation of the Study, including developing a list of recommendations or list of prioritized projects by their respective groups. A study sheet outlining the requested task included seven key questions to guide them in this process. The group reconvened in mid-June to compare and contrast the recommendations from each of the user groups.

The responses from the groups varied from being quite specific in detail to being very general, the members concluded that it may not be possible to come up with a list for the group as a whole because of the varying level of expertise within each of the volunteer organizations. Each user group was asked to summarize their responses to the task as a "strategic sentence" to describe their future interests in trails.

Please refer to the reference document, *Border-to-Border Trail Study Report*, for a more detailed discussion of this result, which includes the "strategic sentences." The guidance worksheet and each user group's responses to the task are included in Appendix F of the reference document.

- V. DISSEMINATION:** The complete report will be distributed to statewide trail advocacy groups (MRTUA), the Metropolitan Council, Minnesota Department of Transportation (Mn/DOT) Districts, Area Transportation Partnerships, DNR Regions, concerned legislators, U.S. Forest Service, National Park Service, and participants in the plan's development. Additional copies of the report will be available for local units of government and others concerned with the development of trails. A summary of the trail inventory will be extensively distributed throughout the state.

VI. CONTEXT:

- A. Significance:** The inventory and mapping phase of this project will help set a framework for future priority setting by visibly showing through mapping what is existing and what is presently proposed. It should be apparent through this process those areas that are lacking in certain trail experiences. This project will also show areas of high potential for future trail proposals such as trail linkages that would connect existing trails. This information can then be used by trail advocacy groups to focus their efforts, legislators and local units of government to evaluate requests for funding, Area Transportation Partnerships to evaluate Intermodal Surface Transportation Efficiency Act (ISTEA) enhancement proposals, and others who might partner with trail proposals for mutual benefit.

Future editions of the Registry of Public Recreational Trails published by the DNR will identify trail proposals that have recently requested funding from grant programs administered by the DNR and Mn/DOT, as well as requests considered by the LCMR and legislature as a whole.

The GIS database that will be developed as part of this study will be incorporated within the Department's existing database.

- B. Time:** Two years.

C. Budget Context:

	July 1995- June 1997	July 1997- June 1999	July 1999- June 2001
	Prior expenditures on this project	Proposed expenditures on this project	Anticipated future expenditures on this project
1. LCMR	\$	\$100,000	\$
2. Other State	\$	\$	\$
3. Non-State Cash	\$	\$	\$
Total	\$	\$100,000	\$

BUDGET:

Personnel	\$ 95,000	staff and/or contract expenses for the inventory, GIS, facilitation and plan development
Equipment Acquisition Development		
Other	\$ <u>5,000</u>	primarily communication, staff and MRTUA travel expenses, and publication costs
Total	\$ 100,000	

VII. COOPERATION: The DNR will incorporate the Metropolitan Council's trail inventory and rely on the cooperation of local units of government as well as the federal agencies to complete the out state trail inventory. The DNR will rely on Mn/DOT for a listing of enhancement proposals and assistance in determining the status of formerly abandoned railroad grades. MRTUA will be consulted periodically to assure that trail user desires are reflected in the process and findings.

VIII. LOCATION: Statewide.

IX. REPORTING REQUIREMENTS: Periodic work program progress reports will be submitted not later than December, 1997; July, 1998; and December, 1998. A final work program report and associated products will be submitted by June 30, 1999, or by the completion date as set in the appropriation.