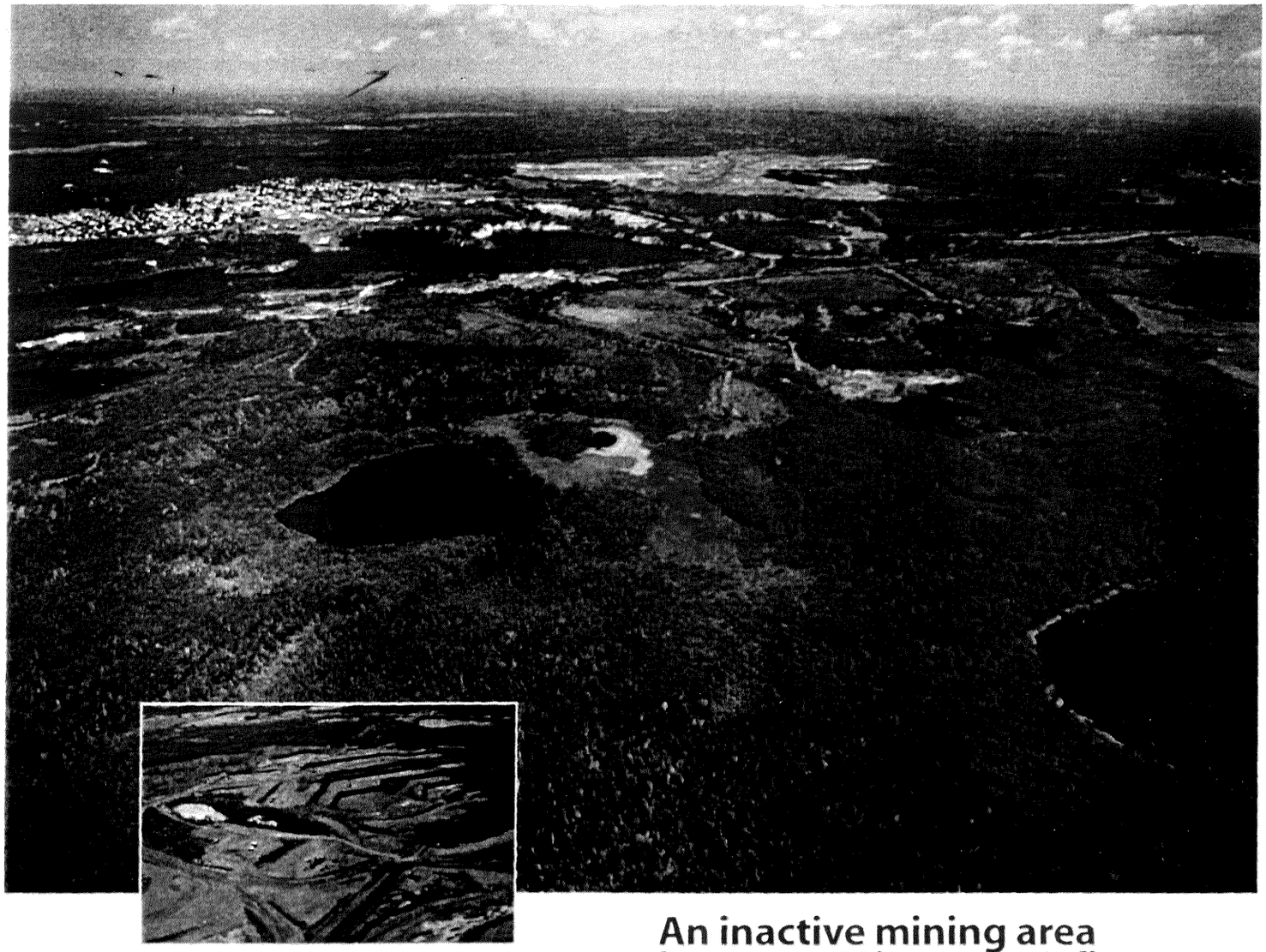
Iron Range

Off-Highway Vehicle Recreation Area



An inactive mining area becomes Minnesota's first OHV Recreation Area

IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA

FINAL DRAFT
FACILITY DESIGN, DEVELOPMENT AND MANAGEMENT PLAN

MASTER PLAN

Prepared Pursuant To
Laws of Minnesota, 1996
Chapter 407

Trails and Waterways Unit
December 31, 1998

1996 Minn. Laws Chap 407
Sec. 32

IRON RANGE
OFF-HIGHWAY VEHICLE RECREATION AREA
LOCAL AREA ADVISORY COMMITTEE

OFFICIAL RESOLUTION

WHEREAS; The DNR and Local Area Advisory Committee have cooperated fully in the planning, design, development, review and revision of proposed facility design and development plans; and

WHEREAS; Planning was conducted in an open, honest and participative manner; incorporating public comments and concerns as appropriate; and

WHEREAS; Every effort has been made 1) To engage interested and affected parties in the planning and environmental review process; 2) To accommodate differing viewpoints and perspectives, 3) To minimize potential social, economic and environmental impacts or disruption resulting from the project; and 4) To proceed in a thoughtful, responsible and professional manner;

WE HEREBY RESOLVE THAT ALTERNATIVE #4, OPTION #1, AS DESCRIBED IN PROJECT PLANNING AND ENVIRONMENTAL REVIEW DOCUMENTS, BE ADOPTED AS THE COMMITTEE'S "PREFERRED SITE DESIGN/DEVELOPMENT ALTERNATIVE", AND;

WE FURTHER RESOLVE, FOLLOWING DUE DISCUSSION AND DEBATE, THAT THE DNR MASTER PLAN FOR THE IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA, FEATURING THIS SITE DESIGN ALTERNATIVE, BE OFFICIALLY ADOPTED AS WRITTEN AND REVISED.

Approved and adopted by the
IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA
LOCAL AREA ADVISORY COMMITTEE
this 21st day of October, l998.

BY _____ 10/21/98
REP. TOM RUKAVINA, COMMITTEE CHAIR *[sign/date]*

Attest: _____ 10/21/98
BRIAN McCANN, RECORDING SECRETARY *[sign/date]*

LAAC1.DOC

Minnesota Department of Natural Resources

500 Lafayette Road
St. Paul, Minnesota 55155-40__

October 26, 1998

TO: **Iron Range OHV Local Area Advisory Committee**
DNR Divisions, Bureaus and Regional Staff
Interested Persons

FROM: **Rodney W. Sando, Commissioner**
Minnesota Department of Natural Resources

SUBJECT: **MASTER PLAN - FINAL APPROVAL**

This Master Plan has been prepared pursuant to *Minnesota Laws 1996, Chapter 407* which authorized the **Iron Range Off-Highway Vehicle Recreation Area.** It contains detailed guidance for the development, management and day-to-day operations of this, Minnesota's first officially designated vehicular recreation facility. The plan is the product of an intensive two-year planning exercise conducted by DNR, Trails & Waterways in cooperation with the Citizen's Advisory Committee which was appointed to assist in the development and operation of this facility on a continuing basis.

Citizens, planners, consultants and Gilbert City Officials joined in crafting provisions of this management plan in a public setting. I am satisfied that the planning and environmental review processes have identifed and adequately addressed social, economic and environmental issues associated with this project. Further, I believe that the final site design is sensitive to the needs and desires of the community, thanks in large part to active local participation in this public planning process. I encourage Gilbert Area residents to continue working with DNR Area Staff and with the Local Area Advisory Committee to ensure that provisions of this plan are properly and fully implemented.

PURSUANT TO THE AUTHORITY VESTED IN ME, I HEREBY APPROVE THE MASTER PLAN FOR THE IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA:

10/27/98
DATE

Rodney W. Sando
RODNEY W. SANDO, COMMISSIONER

EXECUTIVE SUMMARY

INTRODUCTION

This project was undertaken in response to MS Chap. 85.013, Subd. 12a, which directs the Commissioner of Natural Resources to plan, design, construct and operate the ***Iron Range Off-Highway Vehicle Recreation Area (OHVRA)*** *in cooperation with an appointive 9-member Local Area Advisory Committee. When completed, this 1,200 acre facility will feature recreational trails, scramble areas and special events facilities for use by off-road motorcycles, all-terrain vehicles and four-wheel drive jeeps and trucks. The DNR Trails & Waterways Unit will operate and maintain this facility, in perpetuity, as a designated State Recreation Area. The legislation also directs the DNR and Citizen's Advisory Committee to identify additional areas (on Minnesota's Iron Range) suitable for off-highway vehicle use and to connect these to the Gilbert site to the extent possible.*

ISSUES AND ALTERNATIVES

Over the course of the 28-month planning process, issues were distilled from public comments, questionnaires, one-on-one discussions with constituents, and from a telephone survey of 200 Gilbert Area residents. Public concerns fell into four broad categories:

1. ***Site Selection / Planning Process*** *- Many took issue with the political process which lead to the selection and legislative authorization of the Gilbert site. This discontent fueled public debate and colored local attitudes towards the project and towards the implementing agency. Public opinion surveys confirmed that persons unhappy with the (political) manner in which the OHVRA was created also doubt DNR's ability to plan, design and responsibly operate an OHV facility at this location.*

2. ***Social, Economic and Community Concerns*** *- A number of both 'quality of life' concerns (e.g., increased property taxes and decreased market values, loss of hunting privileges) and 'fear of intrusion' concerns (e.g., anticipated traffic, noise, dust, trespass and crime) were expressed by area residents. Critics discount economic and visitor estimates, pointing to anticipated negative impacts to adjacent landowners and Gilbert taxpayers. Project supporters cite anticipated economic returns and the clean-up and reuse of this site as desirable.*

3. ***Environmental Issues*** *- Concern for air and water quality, wetlands, fisheries and wildlife habitat, sensitive plants and animals, soil erosion, noise and dust were foremost among issues raised.. The DNR prepared an Environmental Assessment Worksheet, and subsequent to finding state-listed plants on the site, an Environmental Impact Statement to evaluate design alternatives and to assess potential project effects.*

4. ***Facility Design, Development, Management & Operations*** *- Proponents and opponents alike, had a myriad of questions regarding permitted uses, hours of operation, rules and regulations, etc. Local concern for state-sponsored (or state-permitted) special events was expressed, as were concerns for law enforcement and public safety. There was considerable frustration, especially among those opposed to the project, that the DNR was unable to definitively answer many facility-related questions at the outset of the 28-month planing process.*

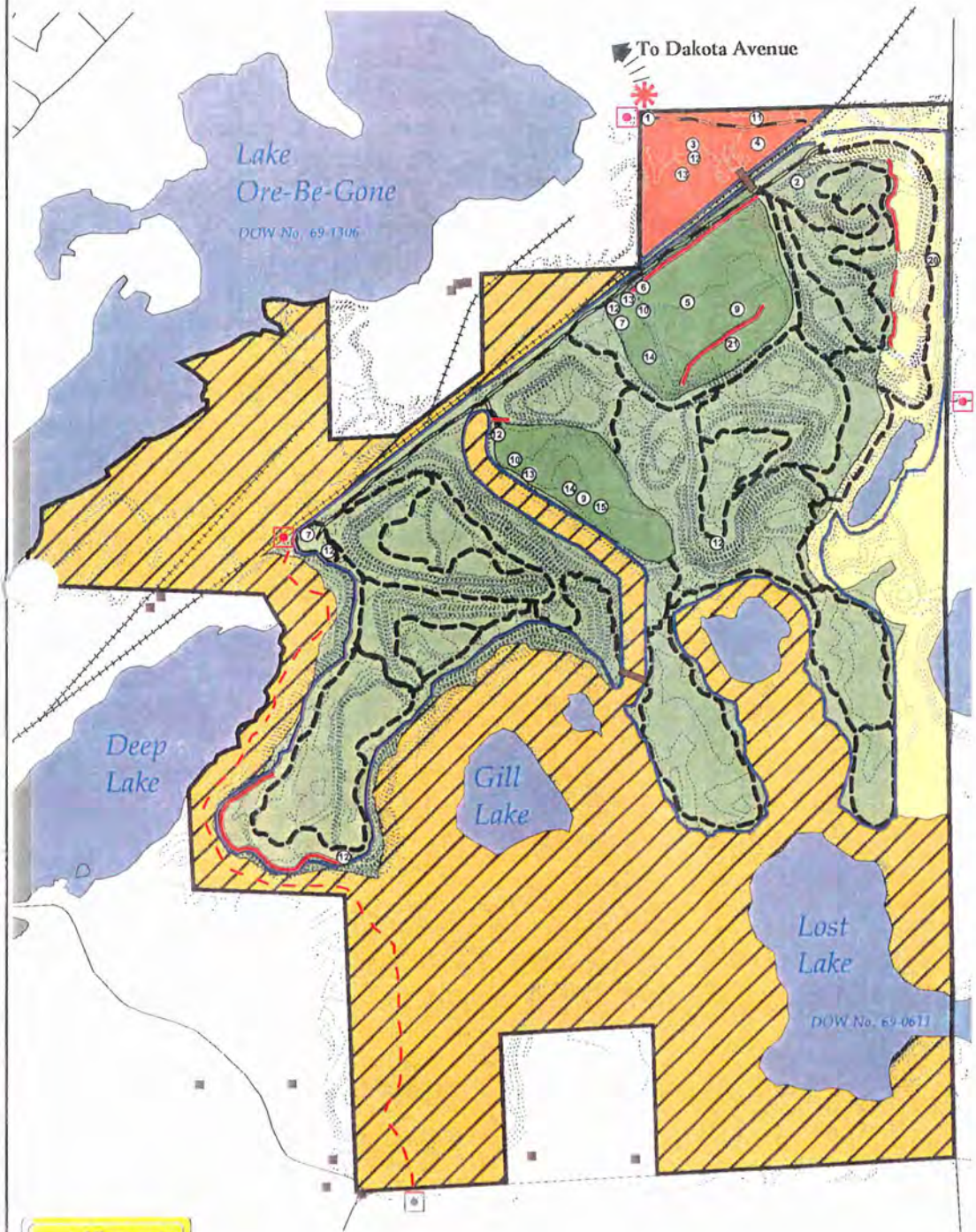
Several site design alternatives were developed incorporating noise and riparian area setbacks in response to public concern. The site designs were considered by the Advisory Committee prior to selecting their "Preferred Alternative". Upon discovery of the St. Lawrence Grapefern (Botrychium rugulosum) in Fall 1997, and the decision to prepare an Environmental Impact Statement, two additional (build) alternatives were prepared in addition to evaluating a "no-build" scenario. The EIS was narrowly scoped; its focus was on proposed development within the two tailings basins where the grapefern is located. The EIS evaluated potential effects associated with each of the build alternatives on grapefern populations and identified habitat. Socio-economic impacts, relative to the project, were also addressed in the EIS.

SELECTED ALTERNATIVE: "LIMITED DESIGN / DEVELOPMENT PLAN"

Advisory Committee members ultimately selected the 'Limited Design Plan' (Figure 1.) because it substantially fulfills project intent without significantly impacting the state-listed Botrychium species, and because it effectively

Fig. 1. Final Design Plan

Iron Range Off-Highway Vehicle Recreation Area



Legend

- Project Site Boundary
- Main Entrance
- Bridge
- Staging/Main Parking
- Gates
- Noise Berms
- Fencing
- Backbone Trail Structure
- Emergency Access
- Main Interior Road (2-way)
- Existing Roads
- Railroad
- Lakes
- Special Event Areas/Parking
  - ① Entrance Kiosk
  - ② Maint Garage
  - ③ Contact Station/Admin Support
  - ④ Vehicle Wash-Off Area
  - ⑤ Multi-purpose Event Area
  - ⑥ Clubhouse/Classroom/Interpretive Center
  - ⑦ Restrooms/Sanitary Facilities
  - ⑨ Scoring/Official Towers
  - ⑩ Concessions
  - ⑪ Motorcycle/ATV Storage
  - ⑫ Day Use Area
  - ⑬ Parking/Staging Areas
  - ⑭ Training Areas
  - ⑮ Advanced Training Area
  - ⑳ 4x4 Obstacle Course (Rockcrawl)
  - ㉑ Sand/Mud Drags
- No Motorcycle or ATV Use
- No OHV Use
- Trail Area
- Buildings

Minnesota
DEPARTMENT OF NATURAL RESOURCES

N

500 0 500 1000 1500 Feet

October 1998

Sources:
Reactions, OHV Consulting
LSA Associates,Inc.
J.J. Van Houten & Associates
Minnesota Dept. of Natural Resources, Trails & Waterways Unit

reduces offsite noise effects by eliminating competitive motocross events. This design plan provides for all of the design features originally described in the vision for the facility, except for the motocross track. Emphasis on safety training and practice riding is expanded, in both basins, by eliminating Special Events overflow parking and by constructing two practice riding facilities for varying skill levels ("A" and "B" level riders). Trail bikes, meeting the 99 d(B)A noise standard can still ride at the OHVRA, and ATV, 4x4, and motorcycle events (except for motocross) can still occur as planned. The 99 d(B)A standard may still be waived for sanctioned Special Events as long as ambient noise levels do not exceed State Noise Standards.

FACILITY DESIGN AND DEVELOPMENT PLAN - KEY FEATURES

- ✓ *Interim access from Hwy. 135 into the main parking/staging area; permanent access via Dakota Avenue.*
- ✓ *Gate House / Contact Station at main gate entrance. Clubhouse provided for organized functions.*
- ✓ *Campground OHV trail will allowing OHV campers to access the facility without trailering.*
- ✓ *Bridge over railroad tracks leads to two special event areas for closed course competitions.*
- ✓ *Primary "backbone" trail system provides access, including emergency access, to the entire OHVRA. Secondary trails emanate from primary trail providing more challenging routes.*
- ✓ *Features training, practice riding and competitive event facilities; hill climbs, mud and sand drag racing area, vehicle test track and obstacle courses. Snowmobile events may also be permitted, subject to DNR and City of Gilbert approval.*
- ✓ *Programmatic emphasis on safety training, practice riding, environmental education and rider ethics.*
- ✓ *Northern trails take advantage of stockpiles for hill climbs, scenic views and challenge; while Southern trails meander through forested areas, avoiding wetlands and open water.*
- ✓ *Day-use picnic and rest areas feature scenic views and interpretive information displays.*
- ✓ *Second crossing of railroad tracks will someday provide pedestrian access to isolated parcel NW of railroad tracks and adjacent to Lake Ore-be-gone.*
- ✓ *Vehicle rinse stations, pro-shop, temporary storage garage and full-service concessions area provided for visitor use and convenience.*
- ✓ *Two emergency exits are provided onto Highway 97 (SW corner) and Pettit Road (E boundary).*

PROGRAMMING AND OPERATIONS

The Iron Range OHV Recreation Area will be operated seven days per week from May 1 to October 31st from 8:00 am to 8:00 pm, or until one hour before sunset - whichever is earlier. Winter operations, from November 15 to April 30, will be Friday through Sunday, from 8:00 am daily until one hour before sunset. Registered off-road trucks and jeeps, ATV's (or Quads) and off-road motorcycles that possess the required safety equipment, mufflers and spark arresters will be admitted if they comply with state noise standards [i.e., 99 dB(A) using the SAE standardized J1287 test]. All OHVs entering the riding area, except during Special Events, must display a current off-road sticker. Vehicles licensed in another state need not purchase a Minnesota sticker. Registered competition vehicles (with engine or exhaust modifications) will be admitted to designated event areas on race days only. All operators must wear a helmet unless their vehicle is equipped with an approved roll-cage and passenger harnesses. All special events participants must wear helmets.

Winter OHV use will be limited to weekends, with the possibility of staging special ice races on frozen water bodies and/or holding snowmobile events subject to noise and environmental limitations, and subject to DNR and local approval. A DNR Special Event Permit will be required for all organized events.

The OHVRA will provide a safe, well-maintained indoor/outdoor training and practice riding facility. Level "A" and "B" training facilities will be located in the (relatively flat) tailings basins to ensure beginner safety. Adjacent hills and slopes will enhance the level of difficulty for the student. A supplemental training area is located adjacent to the clubhouse to provide direct classroom access. Event and training areas will be generally available for practice riding. The training function will provide both hands-on and classroom training programs for all ages. The goal is to increase public awareness of the importance of safety in enhancing OHV experiences. The curriculum focus will be on safety education, driver education, motorcycle and ATV maintenance, trail etiquette and ethics, and a variety of youth-oriented topics and special activities. RightRider and Tread Lightly principals will be infused into all course offerings.

Environmental Education

The Iron Range OHVRA has tremendous potential for both experiential and classroom environmental learning in cooperation with area teachers, naturalists and Environmental Learning Centers. Local educators can aid in the development of grade-specific curriculum, programs and interpretive materials for use at the OHVRA. DNR staff will assist in conducting volunteer-directed programs that serve area schools as part of their regular curriculum or extra-curricular training programs. It is recommended that coursework be broadened to include topics unrelated to OHV use and that courses include participants who do not presently engage in off-highway vehicle recreation. Materials are readily available through the American Motorcyclist Association, the National Off-Highway Vehicle Conservation Council, United Four-Wheel Drive, Motorcycle Industry Council and local chapters and affiliates. The U.S. Forest Service can also provide off-highway vehicle information, training materials and specialized technical assistance.

Interpretation of Natural, Cultural and Historical Resources

Natural and cultural resources of specific interest include lakes, streams, bluffs, wetlands, mineral stockpiles and tailings basins, forest and riparian areas. Providing information about resources unique to the area adds to the overall recreational experience. Interpretive kiosks and signage will be developed in consultation with DNR Minerals and the Minnesota Historical Society to ensure historical accuracy.DNR staff and volunteers can add significantly to the recreation area experience through personal contact.

PROJECT IMPLEMENTATION

Estimated Annual Operation & Maintenance Costs - Summary Table

CATEGORY	OPERATIONS	MAINTENANCE	TOTAL COST
Supplies	$2,000	$1,000	$3,000
Personnel	$75,000	$35,000	$110,000
Utilities	$10,000	- 0 -	$10,000
Equipment	$2,000	$8,000	$10,000
Contract Labor	$5,000	- 0 -	$5,000
Totals	$94,000	$44,000	$138,000

Cost Estimates[1] For Phase I Construction - Summary Table

1. Utilities and Infrastructure		**$1,180,000**
A. Plumbing / Well Drilling	$450,000	
B. Electricity	$5,000	
C. Perimeter Fencing, (34,500 lineal feet)	$125,000	
D. Berms, Buffers and Barriers	$205,000	
E. Primary Access Bridge	$350,000	
F. General Parking / Staging Area	$35,000	
G. Vehicle Wash Area(s)	$10,000	
2. Facility Entrance/Access Roads		**$284,500**
A. Access Road Improvements (off TH 135)	$10,000	
B. Campground Trail Construction	$164,500	
C. Emergency Access Road Improvements	$75,000	
D. Heavy Duty Entry Gate	$15,000	
E. Center Island / Curbing	$10,000	
F. Entry Signing / Lighting	$10,000	
3. Administrative Support Structure		**$320,000**
A. Contact Station / Gatehouse	$100,000	
B. Administration Building	$50,000	
C. Storage/Maintenance Building	$50,000	
D. Restrooms/Sanitary Facilities	$100,000	
E. Exterior Lighting & Security	$20,000	
4. Safety Training & Community Support Facilities		**$246,500**
A. Classroom / Interpretive Center	$150,000	
B. Motorcycle/ATV Storage Facility	$35,000	
C. Training Area Improvements	$39,000	
D. Day-Use / Picnic Area Development	$7,000	
E. Outdoor Pavilion / Parking	$15,500	
5. Trail System		**$89,500**
A. Backbone Trail System Development / Improvement	$50,000	
B. Secondary Trail Development	$25,000	
C. Staging/Scramble Area Improvements	$4,500	
D. Drainage Structures	$5,000	
E. Trail Signing	$5,000	
6. Special Event Areas		**$111,000**
A. Multi-Purpose Event Area	$75,000	
B. Sand / Mud Drag Area Development	$18,000	
C. Obstacle Course	$8,000	
D. Hill Climb Area	$5,000	
E. Spectator Parking, Signing and Fencing	$5,000	
TOTAL DEVELOPMENT COSTS (Phase I)		**$2,231,500**

[1] Preliminary construction estimates were developed by Trails & Waterways Regional and Area Staff, in consultation with site design consultants. Estimates are based upon implementation of the Preferred Design Plan given current prices and development plans. Actual development costs may be more or less than estimated.

IRON RANGE
OFF-HIGHWAY VEHICLE RECREATION AREA
MASTER PLAN

TABLE OF CONTENTS

LIST OF
TABLES & FIGURES

TABLES — PAGE

FIGURES — PAGE

APPENDICES

LIST OF APPENDICES:

A. LEGISLATIVE AUTHORIZATION, MN STAT. CH. 85.013, SUB. 12A
B. LOCAL AREA ADVISORY COMMITTEE -- MEMBER LIST & BYLAWS
C. DNR TECHNICAL TEAM MEMBERS
D. LIABILITY WAIVER & INDEMNITY AGREEMENT (EXAMPLE)
E. FIELD MAINTENANCE CHECKLIST (EXAMPLE)
F. VEGETATIVE COVER TYPES (TABLE F-1)
G. WILDLIFE SPECIES LISTS (TABLES G1-G5)
H. DNR SPECIAL EVENT PERMIT (EXAMPLE)
I. COMPARATIVE ANALYSIS OF PROJECT ALTERNATIVES

Map I-1. Preferred Alternative, OHVRA. *Reactions, LSA & , DNR T&W 1997.*
Photo: St. Lawrence Grapefern *(Botrychium rugulosum), DNR Ecological Services, 1997.*
Photo: Pale Moonwort *(Botrychium pallidum), DNR Ecological Services, 1997.*
Map I-2. Fern Distribution, OHVRA. *Reactions, LSA & DNR T&W 1997.*
Map I-3. Fern Grove in Basin A, OHVRA. *Reactions, LSA & DNR T&W 1997.*
Map I-4. Fern Grove in Basin B, OHVRA. *Reactions, LSA & DNR T&W 1997.*
Map I-5. Area A, NE Basin, Map #1, OHVRA. *Reactions, LSA & DNR T&W 1997.*
Map I-6. Area B, SW Basin, Map #2, OHVRA. *Reactions, LSA & DNR T&W 1997.*
Map I-7. Area A, NE Basin, Map #3, OHVRA. *Reactions, LSA & DNR T&W 1997.*
Map I-8. Area B, SW Basin, Map #4, OHVRA. *Reactions, LSA & DNR T&W 1997.*
Map I-9. Area A, NE Basin, Map #5, OHVRA. *Reactions, LSA & DNR T&W 1997.*
Map I-10. Area B, SW Basin, Map #7, OHVRA. *Reactions, LSA & DNR T&W 1997.*

CHAPTER I. INTRODUCTION

A. PROJECT LOCATION

The statutory boundaries of the Iron Range Off-Highway Vehicle Area include that part of St. Louis County, Minnesota lying within: *(According to M.L. 1996, Chap. 407). See Figures 2 & 3.*

Section 25, Township 58 North, Range 17 West.
EXCEPT the North Half of the Northeast Quarter.
EXCEPT the Northwest Quarter.
EXCEPT the Northwest Quarter of the Southwest Quarter.
EXCEPT the Southwest Quarter of the Southwest Quarter lying north of the Duluth Missabe & Iron Range Railroad.

Section 26, Township 58 North, Range 17 West
EXCEPT the Northeast Quarter.
EXCEPT the Northwest Quarter.
EXCEPT the Southwest Quarter.
EXCEPT the Southeast Quarter, 100 feet along the East Side of the quarter.

Section 35, Township 58 North, Range 17 West
EXCEPT the Northwest Quarter.
EXCEPT the Southwest Quarter.
EXCEPT the Southeast Quarter.
EXCEPT the West 970 feet of the Northeast Quarter of the Northeast Quarter.
EXCEPT the Northwest Quarter of the Northeast Quarter.

Section 36, Township 58 North, Range 17 West
EXCEPT the Southeast Quarter of the Southwest Quarter.

Authorizing Legislation
Minnesota Statutes Chap. 85.013, Subd. 12a direct the Commissioner of the Minnesota Department of Natural Resources (hereinafter 'DNR') to plan design, construct and operate the **Iron Range Off-Highway Vehicle Recreation Area** (hereinafter 'OHVRA') in cooperation with an appointive nine-member *Local Area Advisory (Citizen's) Committee (Appendix A & B)*. When completed, this 1,200 acre facility is to feature recreational trails, and special events facilities for use by off-road motorcycles, all-terrain vehicles and four-wheel drive jeeps and trucks. The DNR's Trails & Waterways Unit will operate and maintain this facility, in perpetuity, as a designated State Recreation Area. The legislation also directs the DNR and Citizen's Advisory Committee to identify additional areas (on Minnesota's Mesabi Iron Range) suitable for off-highway vehicle use and to connect these to the Gilbert site to the extent possible. Minnesota's *Outdoor Recreation Act of 1975 [M.S. 86A.05]* requires that a *Master Plan* be completed prior to official designation.

State Recreation Area Definition
The 1975 Outdoor Recreation Act was amended in 1993 to include "State Recreation Areas", replacing the previously designated "Recreational State Park". The following is exerpted from *M.S. 86A.05*:

Subd. 3. State recreation area; purpose; resource and site qualifications; administration.
(a) *A state recreation area shall be established to provide a broad selection of outdoor recreation opportunities in a natural setting which may be used by large numbers of people.*
(b) *No unit shall be authorized as a state recreation area unless its proposed location substantially satisfies the following criteria:*
(1) Contains natural or artificial resources which provide outstanding outdoor recreational opportunities that will attract visitors from beyond the local area;

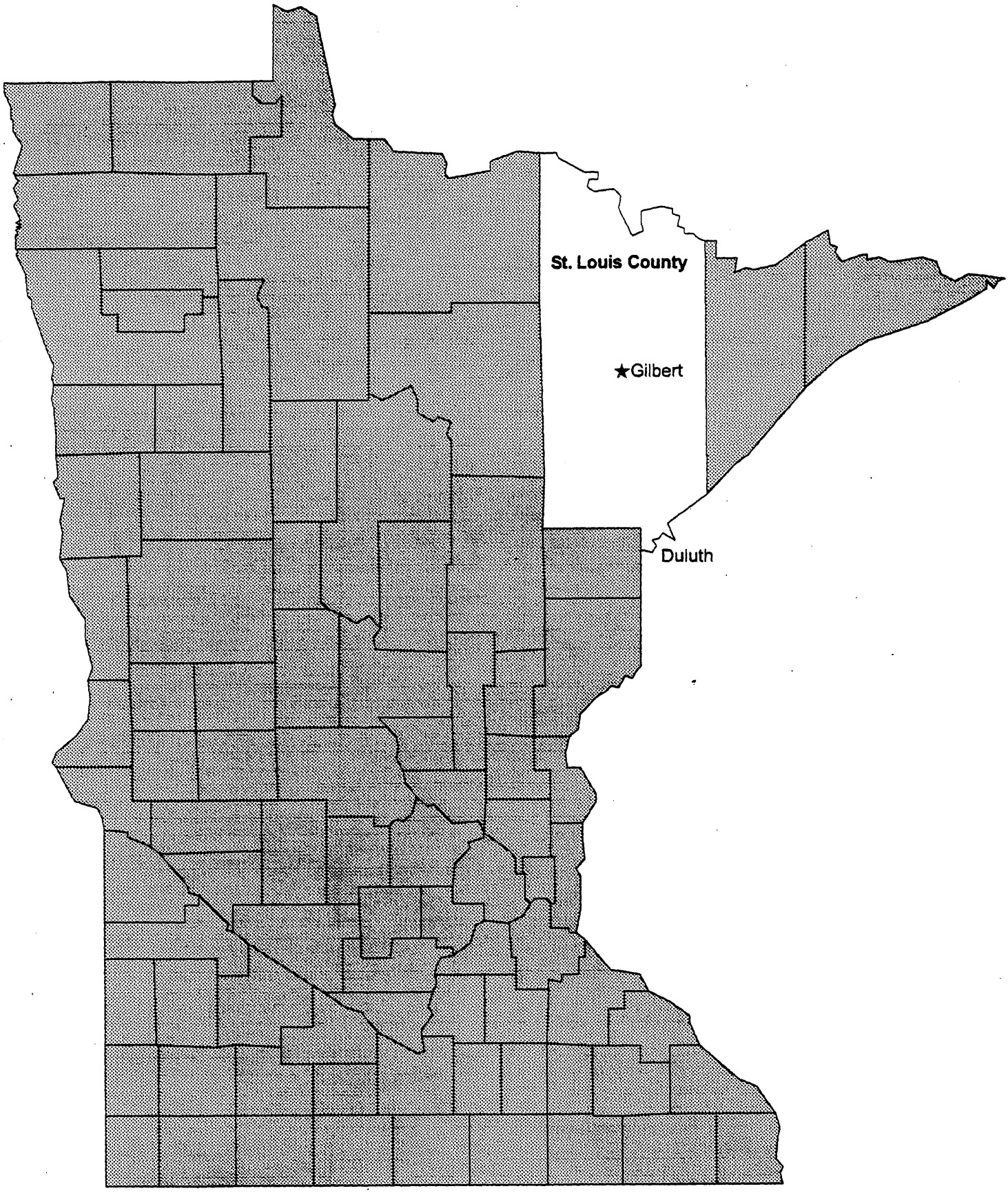


Figure 2. Iron Range OHVRA, General Locational Map

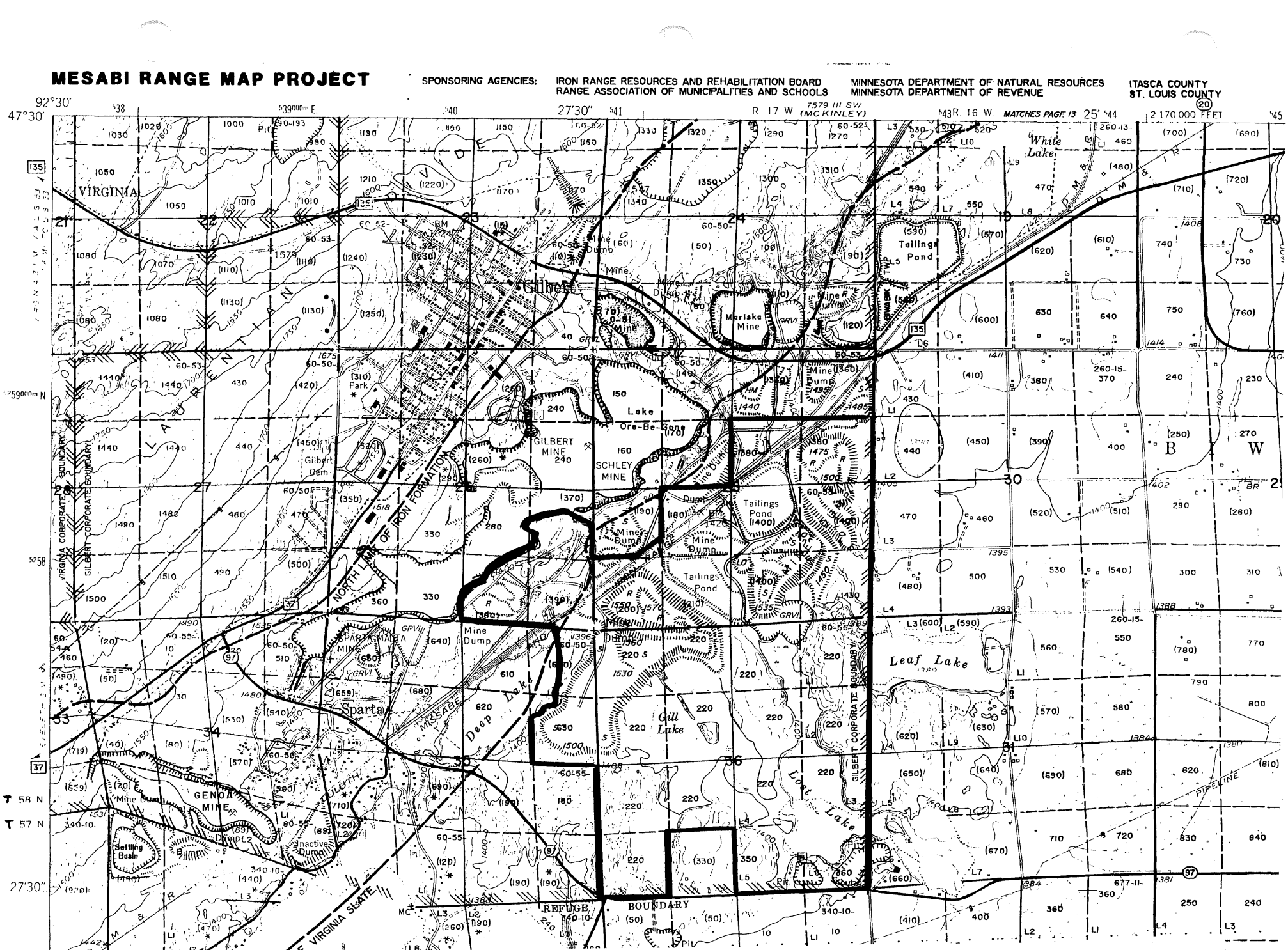
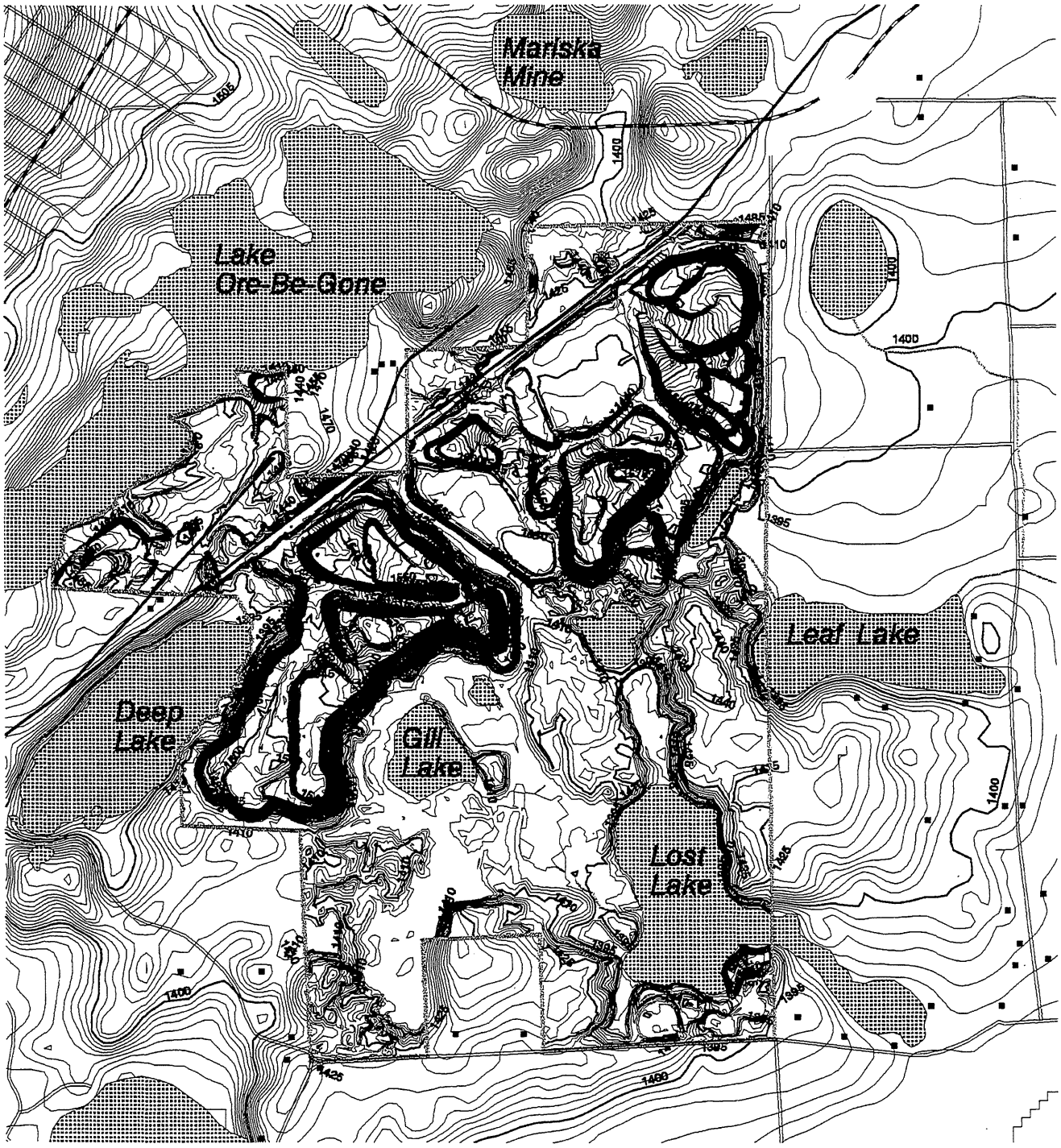


Figure 3. Project Area Map, *Mesabi Range Map Project, 1995.*

Proposed Iron Range Off-Highway Vehicle Recreation Area

Figure 4. OHVRA Site Map With Topography, *MN DNR T&W, 1996.*



Legend

- Buildings
- Major Roads
- Minor Roads
- Rail
- OHV BND
- Text Contouranno
- Contouridx
- Contourint
- Streams
- Text Lake Names
- Lakes
- Ohvbnd
- DEM 3ft Contours Index
- DEM 3ft Contours Interior

0.5 0 Miles

N W E S

Conflicts with topo lines are a result of older elevation data and newer lake information.

Source:
Minnesota Dept of Natural Resources, Trails & Waterways Unit, 1997.

Note:
All acreage and land ownership information depicted on this map is approximate and subject to change. Please check with the St Louis County Registrar to obtain certified land records.

(2) Contains resources which permit intensive recreational use by large numbers of people; and
(3) May be located in areas which have serious deficiencies in public outdoor recreation facilities, provided that state recreation areas should not be provided in lieu of municipal, county or regional facilities.

(c) State recreation areas shall be administered by the commissioner of natural resources in a manner which is consistent with the purposes of this subdivision primarily to provide as broad a selection of opportunities for outdoor recreation as is consistent with maintaining a pleasing natural environment. Scenic, historic, scientific, scarce or disappearing resources within state recreation areasshall be recommended for authorization as historic sites or designated scientific and natural areas pursuant to section 86A.08 to preserve and protect them. Physical development shall enhance and promote the use and enjoyment of the natural recreational resources of the area.

B. BACKGROUND

Project Purpose and Need

This project was undertaken in response to *MS Chap. 85.013, Subd. 12a*, which directs the Commissioner of Natural Resources to plan, design, construct and operate this OHV facility in cooperation with an appointive 9-member Local Area Advisory Committee (LAAC). The LAAC is a standing volunteer committee *(Charter adopted 11/12/96 - Appendix B)* charged with guiding the planning and development process, and with monitoring OHVRA operations long-term. The LAAC provides a local public forum for affecting the operations and management of this state facility to ensure that it fulfills its potential and makes a positive contribution to the community. The Iron Range OHVRA is a user-funded facility[2] constructed and operated with dedicated revenues derived from OHV license and registration fees, and from unrefunded fuel tax revenues.

Off-highway vehicle use is among the fastest growing outdoor recreational activities, with more vehicles registered each year. In excess of 250,000 ATV's, dirt bikes and 4x4 jeeps and trucks are now registered for off-road use in Minnesota. The State Legislature has determined that the DNR has a legitimate responsibility to accommodate this activity on state-administered lands. The DNR believes that there is a substantial unmet need for OHV facilities, especially for safety training and practice riding. At the same time, field staff recognize the need to 'manage' and control OHV use of public lands. The DNR seeks to balance motorized recreation with other legitimate recreational pursuits, and with the agency's enduring commitment to environmental protection and sustainable resource use. County and federal land management agencies have determined that they too must provide for OHV activity (on public lands) in a safe and responsible manner.

Project Beneficiaries

Primary beneficiaries include the estimated 10-20,000 visitors to the site annually, most of whom own and operate off-highway vehicles (Genereux, 1997). There are an estimated 250,000 ATVs and OHMs registered in Minnesota, according to vehicle manufacturers. Another 122,000 ORVs (e.g., 4x4 trucks and jeeps) are also licensed in Minnesota, and this number is rapidly increasing. Sales of street-legal four-wheel drive vehicles has skyrocketed recently; some of these will be used off-road. According to the *National Survey on Recreation and the Environment (USFS, 1997)*, participation in off-road vehicle recreation is growing more rapidly than nearly any other type of outdoor recreation. A 44 percent increase was noted between 1982 and 1994. This trend holds true for all age groups in all parts of the U.S. Minnesota is no exception.

The OHVRA in Gilbert is expected to generate in excess of $200,000 annually in additional economic activity for Gilbert Area businesses. Public land managers also expect to benefit from reduced incidence of trespass and illegal OHV use once this designated public riding area is operational. A strong emphasis on safety training, practice riding, driver education and operator ethics is hoped to foster compliance with OHV rules and regulations.

[2] The OHVRA is funded by dedicated OHV license and registration fees, and a percentage of the unrefunded gas tax dollars attributable to off-highway vehicle use. OHMs accrue .05%; ORVs accrue .16% and ATVs accrue .15% of annual gas (state) tax revenues. Combined these accounts generate in excess of $4.5 million annually for OHV programs.

C. PROJECT SCOPE AND CONTEXT

The 1996 State Legislature directed the DNR to plan, design, construct and operate a vehicular recreation facility at the Gilbert location. Since this site was specifically identified in the enabling statutes, the site selection process was **not** revisited either as part of the planning process, or during preparation of environmental review documents. Additional sites on the Iron Range will be examined subsequent to this process, as per statute, to determine their suitability for OHV recreation. [Appendix A contains the full text of the statutory authorization]

Advisory Committee Charge

"Provide direction on the establishment, planning, development, and operation of the Iron Range Off-Highway Vehicle Recreation Area...(excerpted) cooperatively and in consultation with the Commissioner of Natural Resources" [MS Chap. 85.013, Subd. 12a]

Responsibilities include:

a) Establish Advisory Committee process, adopt Charter, Bylaws and elect Officers.
b) Guide planning process, including public participation & environmental review components.
c) Assist in site design and conceptual development planning.
d) Develop site use, management and operating guidelines.
e) Develop detailed implementation plan, including maintenance, monitoring and evaluation plans.
f) Assess feasibility of acquiring, developing and connecting additional OHV sites.
g) Provide a public forum for discussions regarding day-to-day operation of the OHVRA.

DNR's Charge

"The Commissioner is authorized to acquire, manage and develop lands for the Iron Range Off-Highway Vehicle Recreation Area...(excerpted) cooperatively and in consultation with the Local Area Advisory Committee...and shall (jointly) develop a comprehensive management plan that provides for multiple-use, natural resource protection, timber management, land acquisition, road and facility development." [MS Chap. 85.013, Subd. 12a]

Responsibilities include:

a) Support the work of the Local Area Advisory Committee.
b) Direct land appraisals and land acquisition process.
c) Form an inter-disciplinary Technical Advisory Committee to inform and advise the planning process.
d) Conduct needed research, data collection and data analyses.
e) Recruit and retain an experienced OHV planning, design & consulting firm.
f) Prepare a facility Master Plan and supporting environmental review documents.
g) Plan, design and conduct a public participation process capable of engaging all affected interests.
h) Recommend facility management and operating guidelines.
i) Develop detailed implementation plans, including regular maintenance, monitoring and evaluation plans and schedules.
j) Develop a detailed site development and annual operating budget estimates.

D. VISION, GOALS & OBJECTIVES

Vision Statement[3]

"The Iron Range Off-Highway Vehicle (OHV) Recreation Area will provide diverse and challenging opportunities for off-road enthusiasts, including trails, scramble and rally areas, vehicle testing areas, and special events facilities. The facility will accommodate motorcyclists, all-terrain vehicle riders and 4x4 operators with varying skill levels. Facilities will be designed, developed and managed in an environmentally-sensitive and visually appealing manner. The OHVRA will be safe and well-maintained. Motorized recreationists enjoy their visit and most will return again and again - many from outside of Minnesota.

[3] As developed 10/14/96 by off-highway vehicle group representatives, and subsequently reviewed and approved by the Iron Range OHVRA Local Area Advisory Committee.

Trail users are respectful of the environment and other operators. They are knowledgeable about rules and regulations, and they are in-touch with their own (riding) skill level. Support facilities and amenities available to and accessible by visitors include campgrounds, picnic areas, a maintenance shelter, parking areas, an entrance station, interpretive signing and orientation maps, on-site safety training classes and other advanced learning opportunities.

The facility will become an accepted and valued part of the local and regional economy. Development will have a net positive impact on area businesses and will spur new business activity. The Iron Range OHVRA will be prominently featured on tourism maps. brochures, and other visitor information. It forms an important part of the larger, inter-connected system of motorized recreation areas and trails - enough to permit week-long destination travel. This vehicular recreational system forms an integral and essential part of each community it touches. Strong partnerships will be forged between off-road groups and federal, state and local government agencies, and with OHV retailers and manufacturers. This approach will help to foster mutual goals and objectives, while improving communications between key interests."

Goals and Objectives

1. Land Use/Facility Development Goal - "Provide diverse and challenging opportunities for off-highway vehicle enthusiasts in a socially and environmentally responsible manner."

Land Use Objectives:

a) Plan, design and develop the Iron Range OHVRA as directed by MS Chap. 85.013, Subd. 12a.
b) Provide for the recreational needs of off-road motorcyclists, ATV operators and 4x4 truck drivers.
c) Design, develop, manage and maintain facilities in an environmentally sensitive manner.
d) Provide for trail riding, rider training and practice riding, vehicle testing and organized special events.
e) Identify those portions of the Gilbert site most suitable for motorized use and development, and those areas better suited for non-motorized uses including campgrounds, picnic and rest areas, maintenance shelter, parking/staging areas, commons areas, nature trails and interpretive sites.
f) Adopt land-use designations that combine compatible uses and separate conflicting uses, while protecting natural values and maximizing use of the Gilbert Site.
g) Identify water, sewer and sanitary system needs based upon anticipated visitation levels.
h) Identify staff, budget, equipment and management support facilities necessary for unit operations.
i) Connect the Iron Range OHVRA to a statewide system of vehicular recreation trails and support facilities.
j) Comply with all federal, state and local standards for air and water quality, noise, land-use and environmental protection.

2. Natural and Cultural Resources Goal - "Conserve and protect sensitive natural and cultural resources."

Natural/Cultural Resource Objectives:

a) Identify sensitive or high-value natural and cultural resources. Develop strategies to manage, protect, and, if appropriate, to interpret these resources.
b) Avoid, minimize and mitigate impacts to sensitive or high-value natural resources.
c) Implement Best Management Practices (BMP's) to protect and improve water quality, wetlands, senic and and visual resources.

3. Public Safety/Enforcement Goal - "Provide a safe and enjoyable OHV recreation experience."

Public Safety/Enforcement Objectives:

a) Identify public safety, enforcement and emergency services needs and associated budget requirements.
b) Identify potential public safety and legal liability risks and suggest methods of reducing and managing these risks.
c) Minimize potential traffic hazards associated with accessing or using the Iron Range OHVRA.

d) Provide road/trail signing to identify permitted trail uses, designated skill levels, speed limits and directional signing; as well as any other cautions, temporary closures, limits or restrictions.

e) Strictly enforce rules and regulations relating to safe vehicular operation, permitted noise levels, trespass laws, and all State Recreation Area rules and regulations.

f) Recommend funding for routine (preventative) maintenance and monitoring of the facility.

g) Inform users of safety rules, regulations, equipment requirements and suggested training opportunities.

4. Planning Process Goal - "Plan, design and conduct a fair and open planning process that materially contributes to the successful implementation of the Iron Range OHVRA project."

Planning Process Objectives:

a) Engage interested and affected persons at key points in the planning and decision making process.

b) Work with community groups to identify issues and to foster shared goals and objectives.

c) Identify and evaluate local and regional economic effects.

d) Work closely with federal, state and local government agencies. Staff the Local Area Advisory Committee.

e) Keep the off-road community apprised of progress and enlist their aid in resolving problems.

f) Field a preferred design alternative that incorporates both water-related and noise setbacks.

g) Identify methods of avoiding, minimizing and/or mitigating potential environmental impacts.

h) Cultivate trust and acceptance of this process and its' outcome.

E. PLANNING PROCESS AND PUBLIC PARTICIPATION

Planning Process & Timeline

A year-long planning process was approved by the Local Area Advisory Committee (LAAC) and implemented in June 1996. That process, as modified to reflect project environmental review, is depicted in *Figure 5.* Note that planning steps are not necessarily sequential, nor are they always independent of one another. Note too, that timeframes are approximate and that public participation occurs throughout this process. Ultimately, the process required 28-months to complete.

Public Participation

Public participation opportunities were provided throughout project planning and environmental review. These included public meetings, open houses, information sessions, and question/comment periods during LAAC meetings. Regular project mailings were provided to over 700 groups and individuals expressing an interest in this process. A telephone survey of approximately 200 persons was also conducted (*Genereux, 1997*) in order to obtain a representative statistical sample of local public attitudes and opinions regarding the project. An Email address, facsimile number and toll-free telephone number were provided to persons wishing to comment. Public contact sheets and opinion questionnaires were used to solicit written comments. The *Public Contact Record* lists all dated communications and correspondence, and it identifies actions taken, if any, by the Planning Team.

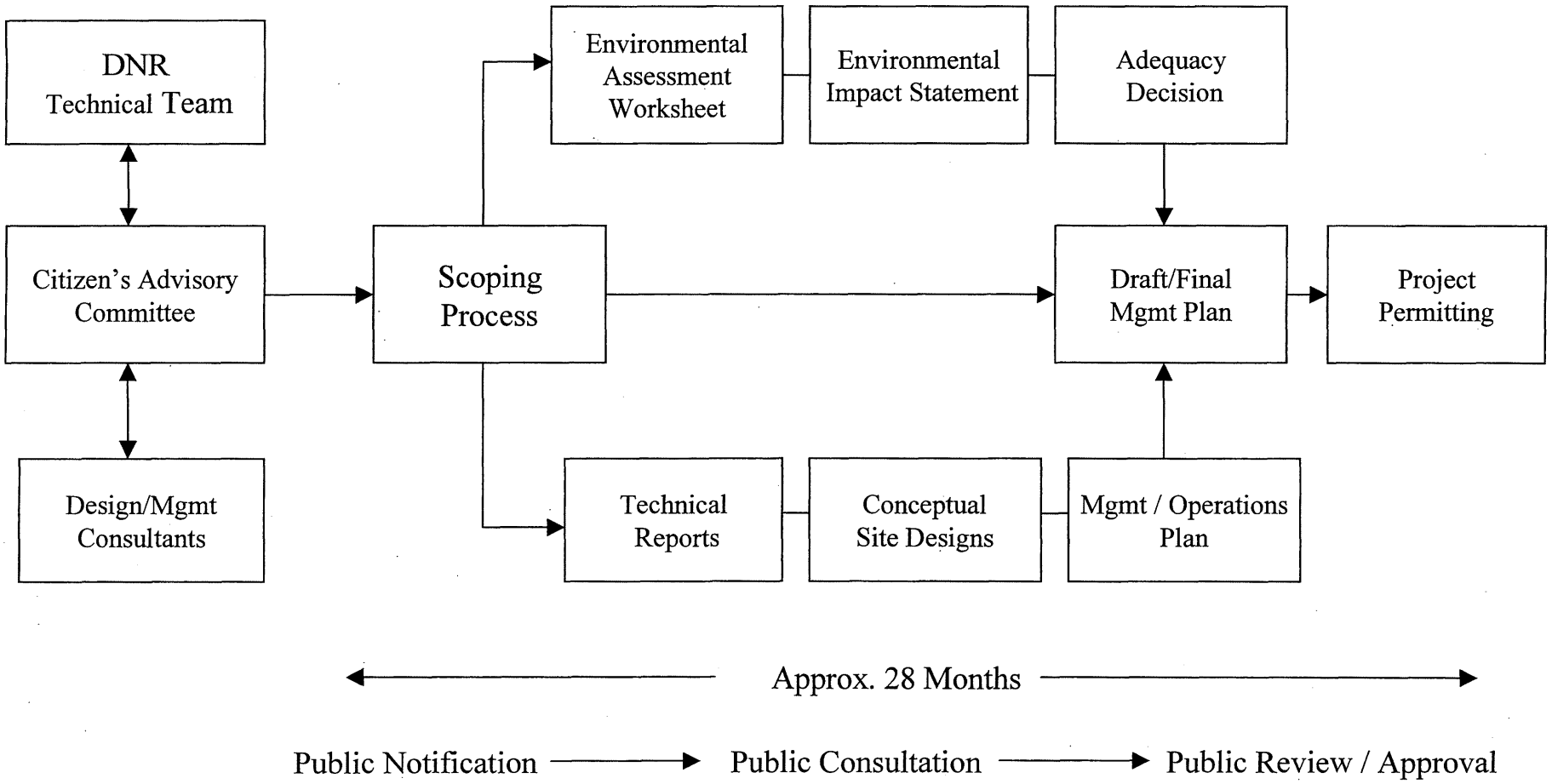
Public Meeting Schedule

A project meeting schedule is listed below. Note that LAAC meeting dates were announced in advance and all meetings were open to the public. Steering Committee Meetings were held on an as needed basis and no formal public notification was provided. Interested persons did, however, attend some of the Steering Committee meetings. Participation in DNR's Hibbing-Eveleth Area Team meetings was by invitation only. The listing below does not include meetings sponsored by OHV groups, citizen's groups, the Gilbert City Council, the Mayor's Advisory Committee on the OHVRA, or those meetings and interviews conducted by the Genereux's as part of their public opinion research. Environmental review meetings are also not listed. Advisory Committee meeting minutes are routinely published in the *Biwabik Times, the Gilbert Herald/Eveleth Scene* and in the *Mesabi Daily News.* Affidavits of Publication are available in the project files.

Local Area Advisory Committee [LAAC] Meetings

1.	June 18, 1996	Gilbert, MN	
2.	July 19, 1996	Gilbert, MN	[Joint LAAC/DNR Team Meeting & Gilbert Site Tour]
3.	August 27, 1996	Gilbert, MN	

Fig. 5 Iron Range OHV Recreation Area Planning Process - Gilbert Site



Source: MN DNR, Trails & Waterways, July 1998..

4.	October 1, 1996	Gilbert, MN	
5.	November 12, 1996	Gilbert, MN	
6.	November 20, 1996	Gilbert, MN	[Public Information Session - No regular LAAC Meeting]
7.	November 21, 1996	St. Paul, MN	[Public Information Session - No regular LAAC Meeting]
8.	December 10, 1996	Gilbert, MN	
9.	February 21, 1997	Gilbert, MN	
10.	May 8, 1997	St. Paul, MN	
11.	May 9, 1997	Gilbert, MN	
12.	June 6, 1997	Gilbert, MN	
13.	December 17, 1997	Gilbert, MN	
14.	July 7, 1998	St. Paul, MN	[Public Information Session - No regular LAAC Meeting]
15.	July 8, 1998	Gilbert, MN	[Public Information Session - No regular LAAC Meeting]
16.	Oct. 6, 1998	Gilbert, MN	
17.	Oct. 21, 1998	Gilbert, MN	

LAAC Steering Committee Meetings

1.	June 27, 1996	Barnum, MN
2.	July 25, 1996	Teleconference
3.	August 1, 1996	Teleconference
4.	September 17, 1996	Eveleth, MN
5.	June 3, 1997	Chisholm, MN
6.	February 23, 1998	Teleconference
7.	May 12, 1998	Virginia, MN
8.	August 6, 1998	Teleconference
9.	October 8, 1998	Teleconference
10.	October 14, 1998	Teleconference

DNR Hibbing-Eveleth Technical Team Meetings (pertaining to the OHVRA)

1.	August 27, 1996	Eveleth, MN
2.	September 17, 1996	Eveleth, MN
3.	October 16, 1996	Eveleth, MN
4.	October 25, 1996	Eveleth, MN
5.	November 5, 1996	Eveleth, MN
6.	November 20, 1996	Eveleth, MN
7.	December 10, 1996	Eveleth, MN
8.	December 19, 1996	Eveleth, MN
9.	October 31, 1997	Eveleth, MN
10.	December 5, 1997	Chisholm, MN
11.	July 2, 1998	Eveleth, MN

Impact of Public Participation

Public participation has had a profound impact on this project. Extensive media coverage included regular print and electronic coverage of issues and events. Public sentiment greatly influenced both planning and environmental review, and to some extent, the final project design. Comments and suggestions submitted during the planning process prompted changes to proposed operating rules and regulations, management guidelines, maintenance schedules and long-term monitoring plans. *[Consult the administrative record and project files for a summary of public contacts, correspondence and press clippings]*

Data Practices Request

A Data Practices Request requesting access to all project files was served on the Planning Team by RAID, Inc on 12/29/96 (RAID is an acronym for "Residents Against Irresponsible Decisionmaking"). RAID, Inc. was formed in 1996 in opposition to the OHVRA project. Project files were made available for review and duplication during a visit to the DNR's St. Paul Offices on 2/19/97. RAID, Inc. was subequently billed for copies made by the agency.

Continuing Public Oversight

The Local Area Advisory Committee (LAAC) provides an opportunity for interested persons to affect the management and operations of this state-run recreation facility on a continuing basis. The LAAC is a standing body with an adoptive charter governing its' structure and functioning.[4] Provisions exist for recruiting new members, retiring old members, and for electing officers to help keep the committee focused and responsive. The committee is charged with monitoring operations and suggesting needed changes or improvements. The committee will solicit public comment in arriving at its conclusions and recommendations, and work cooperatively with local DNR representatives to implement suggested changes.

[4] *Charter Adopted 11/12/96. See Appendix B.*

CHAPTER II. ISSUES & SITE DESIGN ALTERNATIVES

A. SCOPING PROCESS

Initial public information meetings were held on November 20 and 21, 1996 in Gilbert and St. Paul, respectively, to discuss project objectives, and to solicit public comments, questions, ideas and concerns. Approximately 250 people attended. Both written and oral comments were recorded. Participants were invited to submit additional comments during the 45-day scoping period. Comments, both pro and con, were later grouped into four categories: **1) Site Selection/Planning Process; 2) Social, Economic & Community Concerns; 3) Environmental Issues; and, 4) Facility Development, Management, Operations & Maintenance.** Each is summarized below.

B. ISSUE SUMMARY

Issues were distilled from public meetings, public comments (both oral and written), questionnaires, one-on-one discussions with constituents, as well as from a public opinion survey of 200 Gilbert Area residents. The issues fell into four broad categories:

1. **Site Selection / Planning Process** - Many took issue with the manner in which the Gilbert site was selected, and with the political process that lead to legislative authorization. This issue fueled local debate and colored attitudes both towards the project and towards the implementing agency. Public opinion surveys confirm that persons unhappy with the (political) manner in which the facility was created also doubt DNR's ability to plan, design and responsibly operate an OHV facility at this location.

2. **Social, Economic & Community Concerns** - A mix of 'quality of life' concerns (e.g., increased property taxes and decreased market values, loss of hunting privileges) and 'fear of intrusion' concerns (e.g., anticipated traffic, noise, dust, trespass and crime) were expressed by area residents. Project supporters cited anticipated economic effects and the clean-up and reuse of this site as desirable. Critics discounted economic and visitor estimates, and pointed to anticipated negative impacts to adjacent landowners and Gilbert taxpayers.

3. **Environmental Issues** - Concern for air and water quality, wetlands, fisheries and wildlife habitat, wildlife populations, soil erosion, noise and dust were foremost among issues raised. Project opponents called for an Environmental Impact Statement (EIS) in order to address their concerns. Proponents countered with a description of past land use (i.e., heavy mining) and current site conditions (i.e., illegal dumping, trespass, uncontrolled OHV use), which they described as environmentally unacceptable. Proponents later joined the opposition in calling for the preparation of an EIS to fully evaluate environmental effects.

4. **Facility Design, Development, Management & Operations** - Commentors, both pro and con, had a myriad of legitimate questions about permitted uses, hours of operation, trail use rules and regulations, facility design, and day-to-day operations. Local concern for state-sponsored (or state-permitted) special events was also expressed, as were concerns for law enforcement and public safety. There was considerable frustration, especially among those opposed to the project, that the DNR was unable to definitively answer many specific facility-related questions at the outset of the planning process.

C. DESCRIPTION OF SITE DESIGN ALTERNATIVES [Maps in Appendix I]

Three alternative site designs and a conceptual design plan were considered by the Local Area Advisory Committee prior to selecting the *"Preferred Alternative" (Appendix I).* This alternative incorporates elements of all four site designs, and it includes additional design features suggested by LAAC members. All of the alternative site designs observe the acoustical and riparian area setbacks and non-motorized use zones as recommended by the planning and design team. Upon discovery of the state-listed St. Lawrence Grapefern (*Botrychium rugulosum*) in Fall 1997, and the subsequent decision to prepare an Environmental Impact Statement, two additional (build) alternatives were prepared in addition to evaluating a "no-build" scenario. The EIS was narrowly scoped; its' focus was on activities proposed within the two tailings basins where the grapefern was located. The EIS evaluated potential effects

associated with each of the competing alternatives on grapefern populations and habitat. Socio-economic impacts, relative to the project, were also identified and addressed. Appendix I contains a full set of alternative site design maps and a *"Comparative Analysis of Project Design Alternatives" (Table I-1).*

OVERVIEW OF SITE DESIGN ALTERNATIVES[5]

1. **"NO-BUILD/NO-ACTION"** - Describes the future **without** the project. This scenario describes land-use and site development implications given a decision to drop the project. The focus shifts to meeting project objectives without the project, and on satisfying legislative intent via other means. No project-related impacts to the Botrychium species found onsite occur under this scenario.

2. **"PREFERRED DESIGN PLAN"** - The original **'Preferred Design Plan'** is implemented as described. Where conflict exists, ferns are 'taken' to accommodate motorized activity. Fern losses would be minimized, to the extent possible, according to DNR permit conditions. A substantial portion of the *Botrychium* habitat and population (approx. 70%) would be lost under this scenario. **[Maps 4 & 5]**

3. **"MODIFIED DESIGN PLAN"** - This **'Modified Design Plan'** allows for a partial 'taking' of ferns, especially in the southwest tailings basin. Efforts to avoid and minimize impacts are made, while allowing for motorized activity to occur in most areas of both basins. Significant impacts to identified fern habitat (up to 30% lost) would result under this option. **[Maps 1 & 4]** Note that all major design elements outside of the two tailings basins remain the same as those described in the 'Preferred Design Plan'.

4. **"LIMITED USE / DEVELOPMENT PLAN"**- The **'Limited Use and Development Plan'** almost completely avoids known fern populations and habitat. In some cases, this significantly limits use of the site, and requires reducing, reconfiguring and/or dropping activities and/or facilities. Impacts to identified fern habitat range from 0-10% under this alternative. **[Option 1: Maps 1+2; Option 2: Maps 2+3, Option 3: Maps 1+7]** Again, all major design elements outside of the two tailings basins remain the same as described in the 'Preferred Design Plan'.

Comparative Analysis of Project Alternatives [Table 1.]
Botanical surveys performed in Fall 1997 revealed the presence of the state-listed threatened plant species St. Lawrence Grapefern. Follow-up surveys further refined the extent and location of species habitat at the site. Grapefern populations were mapped in the northeast tailings basin (Basin A = 39.55 acres), the southwest tailings basin (Basin B = 22.07 acres), and in an upland area located between the former tailings basins. Basin A was originally thought to contain about 7.9 acres and Basin B about 5.4 acres of suitable grapefern habitat. Subsequent onsite surveys reduced these estimates to 3.89 acres and 1.44 acres respectively.

Originally, extensive use of the tailings basins was planned, effectively clearing them of all existing vegetation to accommodate event activity and spectator parking. The probable environmental consequences of this proposal, however, prompted the preparation of an EIS to assess potential impacts to the state-listed grapefern. The Planning Team subsequently modified the use profile in both basins (Areas A & B) and developed additional site design alternatives for consideration in the EIS. New design alternatives sought to minimize intrusion into identified grapefern habitat. Appendix I contains a full set of design maps.

1. "NO-BUILD"/"NO-ACTION" ALTERNATIVE

The following can reasonably be expected to occur if the no-build or null alternative were selected. It should be noted that the "No-Build' alternative **does not meet project objectives, nor satisfy legislative intent.** It should also be noted that "no-build' does not necessarily imply 'no-change' or 'no-impact', as discussed below.

[5] Build alternatives observe riparian and acoustical setbacks. The "Preferred Alternative" incorporates elements of three preliminary design alternatives that were modified based on public review and comments from the Local Area Advisory Committee members. Only build alternatives satisfy project intent. 'Maps' refers to Maps I5-I10 in Appendix I.

TABLE 1. IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA

Comparative Analysis of Project Alternatives

Design/Development Alternatives	Moto Cross	Sand/Mud Drags	Hill Climb	Training Areas	Obstacle Course	Habitat Affected	Population 'Taken'	Fulfill Project Intent?
1. NO-BUILD	**NO**	**NO**	**NO**	**NO**	**NO**	**NONE**	**NONE**	**NO**
2. PREFERRED PLAN[1] [Maps 4+5]	**YES**	**YES**	**YES**	**YES**	**YES**	**65-70%**	**70%**	**YES**
3. MODIFIED PLAN[2]								
BASIN A (Map 1)	**NO**	**YES**	**YES**	**YES**	**YES**	**0-5%**	**44%**	**YES**
BASIN B (Map 4)	**YES**	**NO**	**YES**	**NO**	**YES**	**25-30%**		**YES**
4. LIMITED PLAN[3]								
OPTION #1:								
BASIN A (Map 1)	**NO**	**YES**	**YES**	**YES**	**YES**	**0-5%**	**4%**	**PARTIALLY**
BASIN B (Map 2)	**NO**	**NO**	**YES**	**YES**	**YES**	**0-5%**		**PARTIALLY**
OPTION #2:								
BASIN A (Map 3)	**YES**	**NO**	**YES**	**NO**	**YES**	**0-5%**	**4%**	**PARTIALLY**
BASIN B (Map 2)	**NO**	**NO**	**YES**	**YES**	**YES**	**0-5%**		**PARTIALLY**
OPTION #3:								
BASIN A (Map 1)	**NO**	**YES**	**YES**	**YES**	**YES**	**0-5%**	**20-23%**	**YES**
BASIN B (Map 7)	**YES**	**NO**	**YES**	**NO**	**YES**	**5-10%**		**YES**

Source: LSA/Reactions OHV Consulting and MN DNR, Trails & Waterways, May 1998.

NOTE: BASIN A = NE TAILINGS BASIN = 39.55 Acres
BASIN B = SW TAILINGS BASIN = 22.07 Acres

1 The title "Preferred Plan" does **not** connote the final selection of this alternative. Rather, this alternative was derived from three earlier conceptual design plans, modified by the OHVRA Advisory Committee, then labeled the "Preferred Design Plan". "Maps" refers to Maps I5-I10 in Appendix I of the OHVRA Master Plan.

2 Design elements outside of the two tailings basins are the same as those described in the Preferred Design Plan.

3 Design elements outside of the two tailings basins are the same as those described in the Preferred Design Plan.

Local Effects:

a) Land use and ownership reverts to the City, County & Regional Biosolids Authority (except Section 36).
b) Short-term land-use unchanged, but public debate resumes over longer-term land-use and development options. Presence of state-listed species will significantly complicate future use and development plans.
c) *Botrychium* remains unprotected and unmanaged. Onsite populations build or decline, depending upon their successional state and any future habitat disturbance.
d) Dakota Avenue extension proposal assumes lower priority, as would campground expansion plans, and other project-related developments. OHV trail to Sherwood Forest Campground would not be constructed.
e) Current (ambient) sound levels maintained in and around the Gilbert Area. Air quality unchanged.
f) Adjacent landowners and others enjoy continued unrestricted road/trail access into this area.
g) Projected OHVRA-related tourism and associated economic benefit foregone.
h) Private investment plans, contingent upon OHVRA facility development scaled back or dropped.
i) Local Area Advisory Committee and DNR Technical Team shift focus to evaluating alternative OHV sites.

Broader Statewide Effects:

a) State-significant vehicular recreation opportunity lost.
b) Focus shifts to developing a regional system of OHV trails, trail connections and other motorized recreation opportunities. Need/demand for OHV facility remains unmet.
c) Motorized use advocates revisit legislative strategy, weigh legal and administrative options.
d) Substantial expenditure on Gilbert Site analysis deducted from OHV accounts with little transferability of site-specific information generated. Legislative appropriations rescinded.

Ecological Effects of the 'No-Build' Alternative

The no-build / no-action alternative would allow for ecological succession to continue at the site, subject to existing use and disturbance. This successional process could be expected to proceed with the entirety of both basins (if left undeveloped) passing through the 'young forest' stage sometime within the coming 15-30 years. These conditions are favorable to the establishment and maintenance of *Botrychium* populations. At the end of this period, however, the 'mature forest' that will replace the immature forest may or may not provide habitat suitable for *Botrychium.* It is therefore reasonable to conclude that, barring interruption, *Botrychium* populations onsite should "peak' sometime within the coming 15-30 years, and decline thereafter. Given the limited understanding of the *Botrychium* genus and of the specific population dynamic at work at this site, it is speculative, at best, to assert population characteristics beyond 15-30 years.

2. THE PREFERRED DESIGN PLAN

The intent of the Preferred Plan is to provide off-roaders with a high-quality recreation experience, while minimizing potential impacts to the environment and surrounding properties. The emphasis is on minimal physical site alteration and maximum trail riding and scramble opportunities. The trail plan provides for a range of abilities, loop trails for interest, control points, training and support facilities to accommodate expected user demand. Approximately 70% of Botrychium habitat and population would be impacted by this alternative. This design **fully satisfies** project objectives. **[Maps 4 & 5]** Maps in Appendix I.

3. MODIFIED DESIGN / DEVELOPMENT PLAN

This alternative involves a partial 'taking' of Grapeferns in both Basin A and Basin B. It maintains all features of the Preferred Design/Development Plan and includes both a motocross track and a sand drag area. Although a portion of the parking area in Basin A is lost, this design alternative **fully satisfies** project objectives. Maps in Appendix I.

Basin A - Includes reconfigured sand/mud drag area and modified parking areas. Approximately 0-5% of identified fern habitat is affected. **[Map 1]**

Basin B - Includes reconfigured motocross track. Parking is modified and reduced. Approximately 25-30% of identified fern habitat is affected in Basin B. **[Map 4]**

4 - LIMITED DESIGN / DEVELOPMENT PLAN

This design alternative almost completely avoids *Botrychium* populations and habitat. Elimination of the motocross track, as in option #1, would significantly impact projected attendance and visitation estimates. Options #1 and #2 only **partially fulfill** project intent. Option #3 **fully satisfies** project goals and objectives. Maps in Appendix I.

Option #1 - Motocross eliminated in both basins. Sand drags in Basin A and minimal OHV use permitted in Basin B. This option **partially meets** project objectives. **[Maps 1 & 2]**

Basin A - Includes reconfigured sand/mud drag facility and modified parking area. Approximately 5-10% of identified fern habitat is affected in Basin A. **[Map 1]**

Basin B - Includes no motocross track or sand drag facility. Event (overflow) parking is eliminated. Approximately 5-10% of identified fern habitat affected in Basin B. **[Map 2]**

Option #2 - Sand Drags eliminated in both basins. Motocross located in Basin A with minimal OHV use of Basin B. Event parking reduced in Basin A and eliminated in Basin B. This option **partially meets** project objectives. **[Maps 2 & 3]**

Basin A - Includes reconfigured motocross track, no sand/mud drag area and modified parking facility. Approximately 5-10% of identified fern habitat affected. **[Map 3]**

Basin B - Includes no motocross track or sand/mud drag area. Event parking is eliminated. Approximately 5-10% of fern habitat is affected in Basin B. **[Map 2]**

Option #3 - Reconfigured motocross track located in Basin B with sand/mud drags in Basin A. This option **fully meets** project objectives. **[Maps 1 & 7]**

Basin A - Includes reconfigured sand/mud drag area and modified event parking. Approximately 0-5% of identified fern habitat is affected in Basin A. **[Map 1]**

Basin B - Includes reconfigured motocross track and reduced event parking area. Approximately 5-10% of identified fern habitat is affected in Basin B. **[Map 7]**

D. SELECTION OF PREFERRED DESIGN ALTERNATIVE

1. ALTERNATIVES NOT CONSIDERED

The Environmental Review Program rules generally require evaluating alternatives to the proposed project, including: alternative sites; technologies; modified designs or layouts; modified scale or magnitude; and an alternative that incorporates all reasonable and prudent measures to avoid, minimize or mitigate unavoidable impacts. However, alternatives may be excluded if they meet any of the following criteria:

1. The alternative fails to fulfill basic project intent.
2. The alternative shows no significant environmental benefits or improvement over the proposed project.
3. The alternative is comparable, but has greater (negative) socioeconomic impacts than the proposed project.

Alternative Sites

Alternative sites were not considered in the project EIS because *M.L. 1996, Chapter 407* directs that the OHVRA be built at Gilbert. Although the DNR, working in conjunction with the Local Area Advisory Committee, has discretion over how the identified site may be used, proposers have no discretion over project location. Alternative sites, therefore, **do not** satisfy legislative intent, nor fulfill project goals or objectives.

Alternative Mitigation Techniques

Transplanting or regeneration of the St. Lawrence grapefern, as a mitigation technique, is not considered feasible at the present time due to the plant's unique mycorrhizal association with soil symbionts. No known method exists for successfully transplanting or regenerating plants in the genus *Botrychium.*

Modified Scale or Magnitude
Further reducing the scale or magnitude of this project does not provide significant environmental benefits over the proposed project, and it jeopardizes project intent. The planning process overseen jointly by DNR and the LAAC effectively removed approximately 698 acres or 58% of the 1,200 acre site from motorized recreational use due to wetland and noise concerns. Further reductions will not provide sufficient area to meet project intent.

Shifting motorized activity from the tailings basins to different parts of the site, even if possible, would in turn create new problems and impacts (e.g., noise, soil erosion, visual or wetland intrusion). The tailings basins were selected for intensive use because of: 1) Their unique profile and topography which act to contain noise and visual intrusion, 2) Their unique soils, and flat surface area which facilitates intensive use, parking, staging and event area construction; and 3) Their relative location which is well-removed from the City of Gilbert proper and other sensitive (noise) receptors. The basins are ideally suited for staging competitive events, which remain an important project component.

2. SELECTED ALTERNATIVE - LIMITED DESIGN / DEVELOPMENT PLAN
Advisory Committee members selected the 'Limited Design Plan' (Option #1) because it substantially fulfills project intent without significantly impacting the state-listed Botrychium species, and because it effectively reduces offsite noise effects by eliminating competitive motocross events. **This design plan includes all of the design features originally described in the vision for the facility, except for the motocross track.** Emphasis on safety training and practice riding is expanded, in both basins, by eliminating Special Events overflow parking and by constructing two (or more) practice riding facilities for varying skill levels ("A" and "B" level riders). Trail bikes, meeting the 99 d(B)A noise standard can still ride at the OHVRA, and ATV, 4x4, and motorcycle events (except for motocross) can still occur as planned. The 99 d(B)A noise requirement may be lifted for DNR-approved Special Events, as long as ambient State Noise Standards are not exceeded.

3. DISMISSED ALTERNATIVES: REASONS FOR DISMISSAL
The "No-Build" Alternative (#1) was judged unacceptable because it **does not meet** project objectives and **does not fulfill** the statutory charge. While both Alternative #2 (Preferred Plan) and Alternative #3 (Modified Plan) do satisfy legislative intent, Alternative #4 provides improved protection for Botrychium populations located in Basins A and B. Alternative #4, Options 2 and 3 were rejected due to public concern for off-site noise during (especially) competitive motocross events. The DNR Technical team and project design consultants concur with this selection, subject to the implementation of suggested avoidance, minimization and long-term protection measures.

CHAPTER III. OVERVIEW OF THE AFFECTED ENVIRONMENT

A. LAND USE ELEMENT

1. EXISTING CONDITIONS

The site includes approximately 1,200 acres located in Sections 25, 26, 35 & 36 of T58N, R17W in St. Louis County. About one-half of the site is former mineland, including (inactive) iron ore pits, ore stockpiles and tailings basins. Mining continued in this area until 1981. Most mining was conducted prior to Minnesota's Mineland Reclamation Rules adopted in 1980; hence no reclamation work was required. Pit walls are shear cliffs, and mine dump slopes are steep having been placed at the angle of repose. Much of the mined area has revegetated naturally. The disturbed (northern) portion of the site will contain the majority of proposed OHV activity.

The southern portion of the site (Sect. 36) is relatively undisturbed wetland and forest area which is managed for timber and wildlife production by DNR Forestry. Much of the area was logged 50-70 years ago. Second growth aspen, birch and spruce are the dominant cover types in Section 36. Gravel resources have also been extracted in several areas of Section 36. Active mining operations occur just north of the site (i.e., Mariska & Laurentian Mines) and portions of the area lie within a mining 'blast zone'.

2. CURRENT LAND USE

Land-Use Classification

Land-use classifications are shown in Figure 6. Adjacent properties and residences are shown in Figure 1. Current land uses include low-density residential, mining and related activity, natural environment (lake) and shoreland classifications. Recreational use will require rezoning of portions of the site to Public Recreation & Forest Reserve to ensure compatibility with the City of Gilbert's land-use planing and zoning ordinance.

Commercial & Industrial Uses

Two commercial operations; Cook Slurry Company and Mesabi Bituminous lie immediately adjacent to the OHVRA in Section 25. Both firms plan to continue operations in their current location. Comments received during the planning process indicate that some area residents find these commercial operators to be undesirable neighbors, while acknowledging their economic importance to the community. Cook Slurry, which manufactures a chemical blasting agent for use in mining, has been investigated by MPCA in the past for discharging waste materials into Deep Lake. Mesabi Bituminous' operation involves gravel crushing and extensive mining and hauling of gravel and asphalt to and from the plant on area roads. The plant emits strong odors emanating from the mixing/heating of asphalt on-site. Neighbors have voiced complaints about both operations.

Inland Steel Mining Company operates a 2.6 million ton per year taconite pellet mine and processing facility one-half mile northeast of the OHVRA site; the northern portion of which lies within the 2000' personnel blast safety zone. Blasting is normally scheduled once per week for a period of 1-2 hours. The blast zone and surrounding area is routinely evacuated and checked by land and air to ensure that no one remains within this perimeter during blasting. Affected portions of the OHVRA, and sections of Highway 135, will be evacuated during blasting events to protect public safety.

The City of Gilbert's Wastewater Treatment Plant, a tertiary treatment facility, discharges treated wastewater into open ditches and channels that flow through the site and into wetlands surrounding Lost Lake. Stormwater runoff also flows through the site and into Lost Lake. Ditches containing effluent will be fenced to avoid possible contamination or a public health hazard. Plant discharge is disinfected from April - October each year in order to reduce public health risks. While unlikely, the possibility of "bypass events" (i.e., wastewater not being adequately treated due to high flow conditions) must be considered. The plant contains a retention tank which allows operators to temporarily divert sewage during high flow conditions, making bypass events less likely. MPCA officials report no problems for the past several years, since bypass reporting requirements took effect.

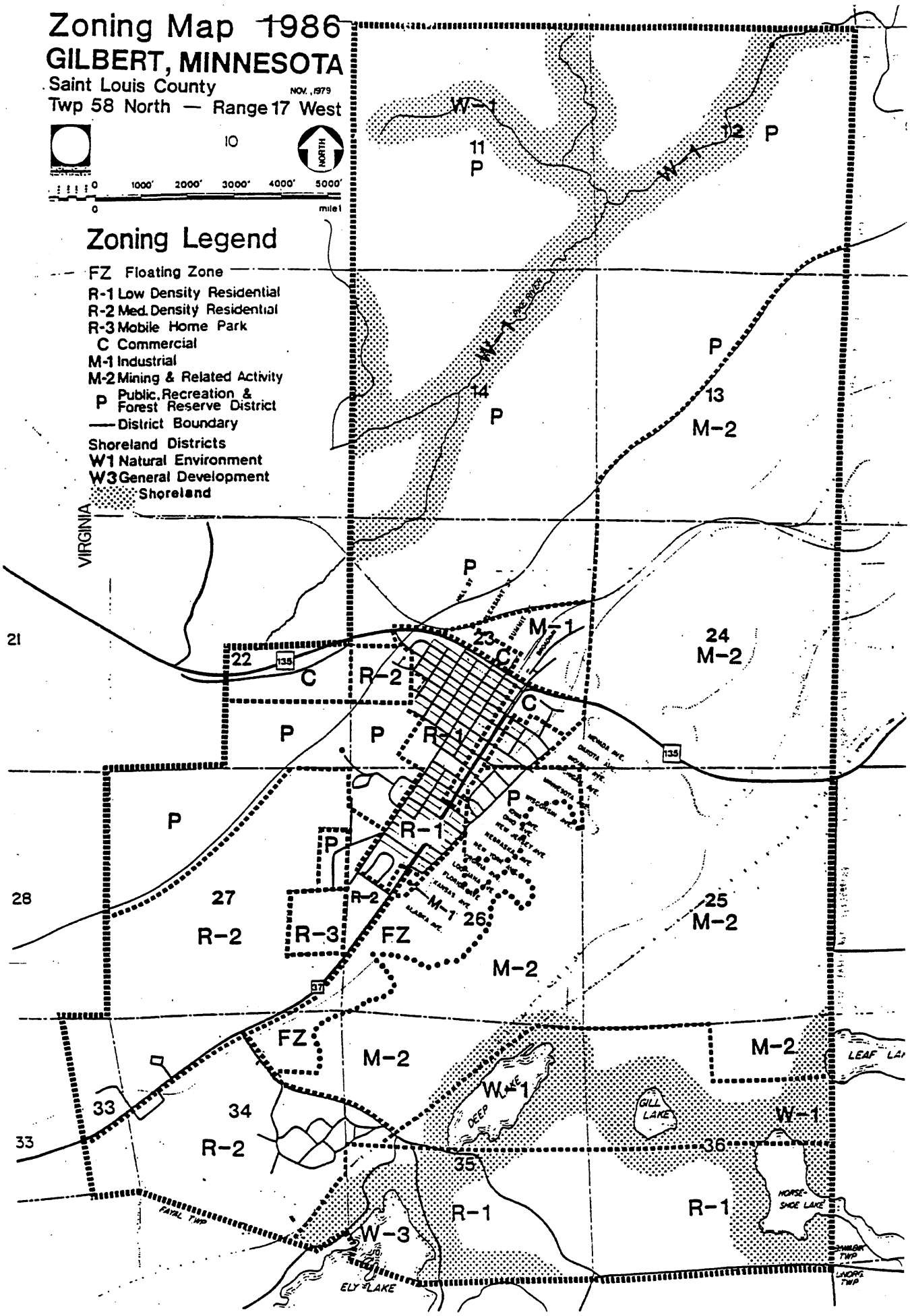


Figure 6. Zoning Map, City of Gilbert, Gilbert Planning & Zoning Office, 1986.

The Duluth-Missabe & Iron Range railroad tracks dissect the OHVRA in a SW to NE direction. Up to 12 trains per day carrying an estimated 15 tons of taconite use these busy dual tracks. Officials from the DM&IR Railway have expressed concern for public safety along the railroad right-of-way. The DNR will bridge the tracks to provide a grade separation at the main entrance point, and fence the railroad right-of-way in all active public use areas.

Recreational Uses
Current recreational uses of the site include hunting, fishing, boating, hiking, wildlife observation, and motorized trail riding by (mostly) local residents. Timber harvest and active gravel mining leases occur in Section 36 and portions of Section 25. Some harvest of evergreen boughs and minnow trapping occurs, mostly in Section 36 - the DNR-managed School Trust Fund Section. According to area residents, trespass, vandalism, loud parties and illegal dumping have become problematic in recent years on the OHVRA site. The illegal discharge of firearms within Gilbert City Limits and indiscriminate OHV use also present public safety concerns.

Sherwood Forest Campground
The Sherwood Forest Park Campground is a modern full-service *Good Sampark* is located within the City of Gilbert adjacent to Lake Ore-Be-Gone and to the proposed OHVRA. This city-owned campground, which is staffed May 1st through Labor Day, features a variety of camping and recreational facilities, including 40 drive-in campsites and many remote tent sites. A planned OHV trail linking the campground with the proposed OHV Area will be constructed. This mile-long link will enable OHV campers at the Sherwood Forest Campground to access the OHVRA without trailering their machines. Expansion of this campground is possible and will be considered should added (OHV) visitor demand warrant. Segregation of OHV users and other campers is also being considered.

3. INFRASTRUCTURE AND TRANSPORTATION

The City of Gilbert is located in central St. Louis County on TH 37 just east of State Highway 53 and Eveleth, Minnesota. One of the Mesabi Range's Quad Cities (Gilbert, Eveleth, Virginia and Mountain Iron) Gilbert is served by major arterials TH 37 (N-S) and TH 135 (E-W) which meet at the north end of town. Nearby Ely Lake is home to a seaplane base - one of the largest in the region. The OHVRA lies entirely within the Gilbert City Limits just across Lake Ore-be-gone. Lake Ore-be-gone is a man-made pit lake which provides a scenic and recreational backdrop to the city's busy main street (i.e., Broadway Avenue or TH 37) and urbanized commercial center. The OHVRA is bordered on the south by County State Aid Highway (CSAH) 97 and on the east by the Gilbert-Fayal Township dividing line, which also defines the Gilbert City Limits. Chestnut Street is a north-south gravel road just 1/2 mile inside of Fayal Township.

OHVRA Access Road
The only maintained road leading directly into the OHVRA is a gravel road approximately .5 miles east of the TH 37 & 135 intersection in Gilbert that serves Mesabi Bituminous and Cook Slurry Co. This private road, used primarily for hauling and trucking, enters the proposed OHVRA on the north side just west of the DM&IR railroad tracks. This road is also used by area residents who hunt, fish and ride OHV trails along the east side of Lake Ore-be-gone. There is no at-grade or bridge crossing of the DM&IR dual tracks at the present time. The bridge proposed for this location will serve as the primary entrance point for the OHVRA. A second pedestrian bridge crossing is tentatively planned for a location approximately 1/2 mile southwest of the main entrance.

Plans for a Dakota Avenue extension are on-hold pending a proposed land exchange between the City of Gilbert and Mesabi Bituminous, and pending a source of (outside) funding needed to complete the project. Interim access to the OHVRA will be via the Mesabi Bituminous access road off of TH 135. This road will be improved and signed to alert visitors to the OHVRA. Plans to construct an OHV trail connecting the Sherwood Forest Campground (owned by the City of Gilbert) to the OHVRA entrance point will go forward. DNR will provide funding assistance for this important recreational trail link.

Existing Traffic Volumes
TH 37 is the principal arterial serving urbanized Gilbert. The Average Daily Traffic count (or ADT) for TH 37 from Gilbert's western city limits to Alaska Avenue is 3,650 vehicles, 175 of which are classified as 'heavy' vehicles. From Alaska Avenue to TH 135 the ADT is 5,300 vehicles, with some 200 heavy vehicles. TH 135 is the primary

east-west arterial. ADT counts for TH 135 east of TH 37 are 4,350 vehicles, including 325 heavy vehicles. West of TH 37 the ADT on TH 135 is 6,400 with 310 heavy vehicles. County Road 97, east of CSAH 96 has an ADT count of 980, and between TH 37 and CSAH 96 the average daily traffic count is 1,900. No data regarding the mix of light and/or heavy vehicles is available on CSAH 97[6]. Traffic volumes and road conditions in the Gilbert Area are considered to be well within normal design standards and operating capacities by the County Traffic Engineer.

B. SOCIAL AND ECONOMIC ENVIRONMENT

1. HISTORIC AND CULTURAL RESOURCES

The initial archeological and cultural investigation was conducted by Trails & Waterways' Cultural Resource Program Staff during October 1996. Subsequent site visits supplemented archival research. The initial review was performed for a broadly defined study area in order to assess the potential for the project area to contain significant cultural resource properties. No currently documented archeological or historical properties or artifacts were found within the project's Area of Potential Effect. A determination from the State Historical Preservation Office (SHPO) regarding this investigation and the negative finding has been issued and is on file with DNR Trails & Waterways.

Regional Geology

The Mesabi Iron Range is a 120-mile long, 3-mile wide band of northeast-southwest lying Precambrian igneous and meta-sedimentary rocks dipping 5-15 degrees to the southeast. It is overlain by Pleistocene glacial drift deposits up to 300 feet thick. Precambrian rocks form the southern edge of the so-called "Canadian Shield". The predominant physiographic feature is the "Giant's Range" - a long, linear ridge consisting mostly of Precambrian granite at an elevation of from 200-400 feet higher than the surrounding terrain. The Laurentian drainage divide (or 'continental divide') follows the crest of the Giant's Range.

Paralleling the Giant's Range to the south is the Biwabik Iron Formation, from which iron ore has been mined for over 100 years. This formation, which ranges from 350-850 feet thick, is characterized by iron silicate materials, chert, magnetite, and iron-carbonate materials. Weathering processes have concentrated iron-bearing ore materials to produce lenses of "natural ores" which have been almost completely mined from the Mesabi Range. Underlying the Biwabik Formation is the Pokegama Quartzite, a micaceous meta-sedimentary rock unit ranging in thickness from 30 to 150 feet. Overlying the Biwabik Formation is the Virginia Argillite, a rock similar to slate, with a thickness greater than 2,000 feet.

Mining History

The OHVRA will be developed on Minnesota's Mesabi Iron Range which extends approximately 120 miles across Itasca and St. Louis counties in northeastern Minnesota. (See Map) The Mesabi Range has seen intense mining and lumbering since about 1892 when iron ore was first discovered. The Merritt brothers first found ore in a test pit sunk in what is now Mountain Iron. A mad scramble follwed their discovery. Between 1890 and 1892, more than 120 companies were formed to mine the rich ore. In 1893, however, when the bottom fell out of the business, the Merritt brothers fell upon hard times and turned to financier John D. Rockefeller for help. Through a variety of complicated deals, they finally settled for a relatively small amount and minerals ownership on the range shifted into the hands of the Rockefeller's, the Carnegie's, the Morgan's and other wealthy eastern tycoons.

The region today contains many active and inactive open-pit mines, underground mines, ore and overburden stockpiles, tailings basins and many small mining towns. About 152 square miles of land in total have been disturbed by mining. The Mesabi Range has been among the nation's major sources of iron ore for the past 100 years. It currently supplies 64 percent of the iron ore used to make steel in the United States. A total of 3.5 billion tons of natural ore have been mined from the Mesabi Range. About 15 million tons of ore were removed from mines located on or adjacent to the proposed OHVRA site.

With high-grade mineral deposits largely exhausted and increased foreign competition, taconite has become an important ore export. Taconite is a hard rock containing 20-30 percent iron ore. Large processing facilities

[6] This data was provided by Jim Foldesi, Traffic Engineer for St. Louis County. All ADT data is from 1995.

constructed between 1955 and 1977 turn the low grade ores into high-grade taconite pellets. Today, seven taconite plants operate on the Mesabi Range with a combined annual capacity of well over 40 million tons. Mining continues to dominate regional income and full-time employment, and plays a significant role in determining population and settlement patterns, work routines and community identity. The forest products industry, tourism and related service sector businesses are also increasingly important to the regional economy.

Quad Cities[7]

The so-called 'Quad Cities' of Gilbert, Virginia, Mountain Iron and Eveleth owe their origins to the discovery of iron ore and their growth to eastern capital and immigrant labor. With mining, came problems endemic to a mining economy, namely seasonal employment, labor strikes, and the relocation of neighborhoods and whole towns. With depletion of the rich natural ores, came the taconite industry. **Mountain Iron**, sometimes called "the Birthplace of the Mesabi", traces its origins to the discovery of iron in 1890 at the famous Mountain Iron Mine. Although a great ore producer, the mine closed in 1908 due to water seepage, and it was suceeded by several smaller mining operations. In 1942, the mine reopened and subsequently produced millions of tons of ore for the war effort. Depleted, it closed for good in 1956 and was placed on the National Register of Historic Places. Today, Mountain Iron is home to the giant Minntac Plant, the largest taconite producer in Minnesota.

Ore was discovered in the **Virginia** Area in 1892. By year's end, Virginia was an organized village connected by rail to surrounding communities. Destroyed by fire in 1893, the town was rebuilt and reorganized as a city only to be partially burned again in 1900. Supported by lumbering and mining, the town grew in size and importance and became known regionally as the "Queen City of the Mesabi Range". Its main street, Chestnut Street, was placed on the National Register of Historic Places in 1997 as a Historic Commercial District. Although iron ore was discovered at **Eveleth** in 1892, the town was not incorporated until 1893. In 1895, ore was discovered beneath the town and it had to be moved. A new site, platted to the east, was established and by 1900 the town of 1,500 was moved a quarter mile uphill where it stands today. Dubbed the "Hockey Capital of the USA", Eveleth is home to the United Stated Hockey Hall of Fame. Since 1965, Eveleth is also the home of Eveleth Taconite, or 'EvTac' as it is known locally.

Gilbert is the youngest of the Quad Cities. Its roots can be traced to Sparta, a mining community platted in 1896 on a rolling hillside sloping gently to Ely Lake. Sparta grew to 1,000 residents, but having been platted over a rich ore body it was sold to a mining company. In 1908, most of the buildings were moved to the present-day Gilbert site, a new townsite incorporated on 2,240 acres of both platted and unsettled territory. A mining company filed a formal protest with the St. Louis County Board, and the State Supreme Court ultimately ruled the incorporation illegal, ousting all village officials. In 1909, the village, which described itself as the "City of Destiny", reapplied for incorporation - this time including only 143 acres within its boundaries.

2. LOCAL AND REGIONAL ECONOMIC CONDITIONS

Until the 1980's, manufacturing was the economic engine that fueled the economy of St. Louis County. More recently, growth has been in the service industry, both in St. Louis County and nationwide. The mining industry, the regions' major economic generator, lost about 5,600 jobs between 1980 and 1997, or about half of the mining workforce. Regional population dipped about 28,000 during that same period.[8] Today, although the economy still relies heavily on the region's natural resources of timber and taconite, employment has shifted decidedly towards the service sector - wholesale and retail trade, healthcare and business services. Unemployment in 1997 is much less (45% less) than in 1980, at the peak of the mining downturn, even with substantial growth in the regional labor force (4,000+). This growth, however, has been predominantly in service industries. Manufacturing employment in the region has declined to about 17,000 in 1998 from the high of 24,500 in 1980.

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[7] Excerpted from: Virginia Historical Society, and the Quad Cities Alliance.

[8] The Minnesota State Demographer projects that St. Louis County will lose 15,000 residents between 1998 and 2025, more than any other Minnesota County. He attributes this to aging population and continued out-migration - two factors that have historically stagnated the area's growth. In Northeastern Minnesota, only Cook and Aitkin Counties are expected to gain population over the period.

So, while more people are actually employed in 1998 than in 1980, the individual worker is not necessarily better off. Service sector jobs tend to pay less than manufacturing jobs and may lack an employee benefits package. Consequently, many laid-off miners had to settle for lower wages or leave the area. Service workers are also not necessarily always employed in full-time jobs that they are well-suited for in terms of their education, training and past experience. When adjusted for inflation, total wage and salary disbursements in the Duluth-Superior Metropolitan Statistical Area (includes all of St. Louis County and Douglas County in Wisconsin) fell slightly between 1980 and 1996, according to the Bureau of Business and Economic Research. On an hourly level, the U.S. Department of Labor's Bureau of Labor Statistics reports that the average manufacturing wage in the Duluth-Superior MSA in 1980 (adjusted) was $13.38 compared to $12.23 in 1997 - a drop of $1.15 over a 17-year period. Even with the advent of two-income families, household income is not rising in the region.

Resurgence of Mining

Mining and affiliated industries remain a dominant economic force in northeastern Minnesota. While the mines aren't hiring as many people as they once did, payroll, fuel, taxes and ore production is substantially higher than ever before. Payrolls for Minnesota's six Iron Mining Ass'n member mines totaled $389.7 million in 1996, a year in which nearly 46 million tons of ore was produced. Sixty-six percent of the millions of dollars annually in production taxes ($86 million in 1995) are distributed to cities and towns, school districts, counties and property tax relief on the range. Taconite production at the seven mines operating on the Mesabi Range is again approaching its all-time high of just over 54 million tons produced in 1979. Investments in new mining equipment and facilities is expected to top $1 billion in the coming decade. This in addition to the $4 billion already invested. These investments affect businesses in over 200 Minnesota communities while generating $100 million annually in taxes.

So, despite years of trying to diversify, the economy of Northeastern Minnesota is as dependent as ever on its vast natural resources. More than 55 percent of the region's economic output is tied to just nine industries dominated by iron mining, wood and paper production. And, while the region remains vulnerable to recession, the iron mining and paper industries are healthy and operating at near capacity. Long term, all of the economic indicators point to strong growth for the paper and taconite industries, in spite of growing competition from low-cost producers both foreign and domestic. So far, a strong U.S economy and growing worldwide demand for wood, paper and steel have moderated the effect of currency crises abroad and the dumping of raw materials by debtor nations.

City of Gilbert

The City of Gilbert lies immediately northwest of the proposed OHVRA, just across Lake Ore-be-gone[9]. The Village of Gilbert was first formed in 1908 when nearby Sparta, a mining boomtown which overlayed a rich ore vein, was moved to mine the ore. At that time, Gilbert boasted eight producing mines with an average monthly payroll of close to $100,000. The modern-day City of Gilbert had a 1997 population of 1,910. With reduced mining employment, the city's population has gradually declined over time, although it has stabilized in recent years with the resurgence of the mining industry. Corresponding with earlier population declines has been the loss of some businesses in the city, and a decline in overall market values. However, property tax receipts remain steady and the city's gross tax capacity and fund equity remains strong *(Table 2)*. The City is actively seeking new businesses and aggressively promoting economic development opportunities.

Inland Steel Mining Company's nearby Laurentian Taconite Mine (and plant) which opened in January 1983, currently employs 371 workers and paid more than $18.3 million in payroll and benefits, and $5.7 million in taxes in 1996[10]. Combined production is currently at 2.7 million tons between the Island's Laurentian and Minorca (Virginia) Taconite Mines, making it a significant contributor to the region's combined total of about 47 million tons (1997). Production taxes are distributed to communities across northeastern Minnesota. By all indications, mining will continue to be a dominant economic force well into the future. Billions of tons of taconite remain unmined beneath the surface. According to authorizing statutes, future mining and mining-related land-uses **are not precluded** within the statutory boundaries of the OHVRA.

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[9] The entire Iron Range OHVRA is actually located **within** the Gilbert City Limits. Urbanized Gilbert lies adjacent to Lake Ore-be-gone, and adjacent to the proposed OHVRA.

[10] The northern portion of the OHVRA lies within the personnel 'blast zone' (2000 feet) for Inland Steel's Laurentian Mine. Affected portions of the OHVRA (and highway 135) will be vacated for blasting as necessary to protect public safety. Blasting normally occurs for 1-2 hours per week. The area is typically checked by air to ensure that nobody remains within the blast zone prior to blasting.

The primary businesses in Gilbert are eating and drinking establishments. The city constructed a new tertiary wastewater treatment plant in 1974, and Gilbert operates its own profitable electrical and water utilities. The City of Gilbert has enjoyed relative stability in local government aids, but intergovernmental revenues (e.g., homestead credit, municipal aid) have fluctuated substantially in recent years. General governmental expenditures have continued to rise while other expenditures vary from year to year. The City of Gilbert's Annual Financial Report for 1997 is shown in Table 2. In the Genereux's public opinion survey, respondents rated economic conditions as "fair to poor". Local residents felt that a motel was the business most needed in town, and that a major industrial employer would significantly aid local economic conditions.

Table 2. City of Gilbert, 1997 Annual Financial Report

Key Financial Health Indicators

Indicator	1994	1995	1996	1997
Current Population (Estimate)	*1,917*	*1,914*	*1,915*	*1,910*
Gross Tax Capacity	*$358,671*	*$363,914*	*$375,940*	*$362,398*
Percent Property Taxes Collected	*99.60%*	*90.96%*	*96.92%*	*100.05%*
City Expenditures Per Capita (Gov't Funds)	*$1,015.31*	*$1,113.92*	*$999.16*	*$1,241.88*
Bond Rating	*A*	*A*	*A*	*A*

Revenues & Expenditures - General Operations

Revenues	1996	1997	Net Change
Taxes	*$566,902*	*$626,292*	*+10.48%*
Licenses and Permits	*$7,675*	*$8,716*	*+13.56%*
Intergovernmental Revenues	*$927,754*	*$1,261,318*	*+35.95%*
Charges for Services	*$187,752*	*$187,962*	*+.11%*
Fines and Forfeits	*$17,915*	*$18,312*	*+2.22%*
Special Assessments	*$$25,235*	*$34,146*	*+35.31%*
Miscellaneous	*$263,785*	*$168,699*	*(36.05%)*
TOTAL	**$1,997,018**	**$2,305,445**	**+15.44%**

Expenditures	1996	1997	Net Change
General Government	*$259,997*	*$281,039*	*+8.09%*
Public Safety	*$409,701*	*$366,182*	*(10.62%)*
Public Works	*$624,286*	*$555,834*	*(10.96%)*
Culture and Recreation	*$200,858*	*$198,442*	*(1.2%)*
Economic Development	*$1,641*	*$53,972*	*+3,288.97%*
Miscellaneous	*$141,337*	*$132,248*	*(6.43%)*
Capital Outlay	*$136,548*	*$158,785*	*+16.29%*
Debt Service	*$139,020*	*$625,487*	*+449.93%*
TOTAL	**$1,913,388**	**$2,371,989**	**+23.97%**

Revenues Over (Under) Expenditures	**$83,630**	**($66,544)**	
Borrowing - Bond Issues & Lease-Purchase		*$91,416*	
Proceeds from Sale of Assets	*$900*		
Transfers In (Out) - Net	*$15,000*	*$15,000*	
Revenues Over (Under) Expenditures	**$190,046**	**($50,644)**	
Fund Equity, Beginning of Year	*$891,430*	*$1,081,476*	*+21.32%*
Fund Equity, End of Year	*$1,081,476*	*$1,030,832*	*(4.68%)*

3. PUBLIC OPINION SURVEY RESULTS[11]

Genereux Research was retained by the DNR at the recommendation of the Local Area Advisory Committee and given three principal research tasks:

1. Interview residents within one-mile of the proposed OHVRA to collect information and gauge public attitudes and concerns regarding potential impacts;
2. Provide an estimate of annual attendance and the corresponding economic impact to the City of Gilbert and surrounding areas;
3. Estimate any public (taxpayer) costs arising from construction and operation of this proposed facility, including public safety and enforcement costs, provision of public utilities, needed infrastructure improvements, or possible devaluation of adjacent properties.

A total of 200 residents were called: 55 who live within 0.5 miles of the site; 47 living between 0.5 - 1.0 miles; and the balance from the 'urbanized' area of Gilbert, including 37 who reside east of Broadway. Respondents were almost universally pleased with their surroundings, citing peace and quiet, privacy, nice neighbors and neighborhoods. Although over 70% of respondents said they noticed 'normal' neighborhood and traffic noises, two-thirds did not regard this an annoyance. By contrast, 12-20% think that noise emanating from **current** OHV use is annoying. This view is even more common among rural residents living near the site. Respondents named 'dirt bikes' as the most offensive noise, followed by snowmobiles, ATV's, airplanes and other revving motors.

When asked about the prospect of an OHV Recreation Area coming to Gilbert, persons living in the urbanized portion of the city were more likely to be pleased than their rural neighbors. Persons who have difficulty dealing with change also tended to be negative towards the proposal. The same is true of respondents that cited nuisance concerns (e.g., noise, dust, litter, trespass). However, the strongest public sentiment concerned the lack of widespread notification or the opportunity to comment (or vote) on the OHVRA proposal before it was written into law. This is especially true for those living closest to the site. Survey results show that persons expressing dissatisfaction with the political process leading to creation of the OHVRA, also tended to doubt DNR's ability to build and operate an OHV facility "that we can all be proud of". Public frustration on this issue spilled over into the planning and environmental review processes, fueling distrust and resentment of DNR and local elected officials. It eroded trust in the process, and led many to prejudge the outcome of this 28-month public planning exercise.

Issues and Concerns

Chief concerns cited by respondents include law enforcement, speeding, accidents and litter, followed closely by noise and lake pollution. Those living closest tended to rate their concerns as more important. Trespass is also a big concern, especially by rural Gilbert residents. Adjacent private property owners are concerned about the potential loss of property value, and how the OHVRA might impact the local tax base. Based on a review of research in other areas, loss of property value has not been a problem elsewhere. Many also expressed concern for added public costs for utilities, law enforcement, emergency services, roads and infrastructure that might result from construction and operation of the OHVRA. No substantial taxpayer costs are anticipated to result from the construction or operation of this facility. The Local Area (Citizen's) Advisory Committee, early in the planning process, resolved that no substantial costs shall accrue to Gilbert taxpayers.

Project opponents also took issue with DNR's failure to apply OHV siting criteria developed in a 1993 study *(Genereux, 1993)* prepared under contract with DNR. Application of these criteria, they argue, would effectively preclude the selection of the Gilbert Site, because the Gilbert Site is less than 2,500 acres in size, contains lakes and wetlands, and is within one-mile of occupied dwellings. While useful, the Genereux criteria were never intended to serve as (minimum) guidelines or standards for siting OHV facilities. They were used to screen candidate sites identified as part of a broad-based geographic search of potentially suitable OHV sites within a 100-mile radius of the Twin Cities Metropolitan Area. Although 12 sites did ultimately meet these "ideal" criteria, none were ever authorized or constructed. Subsequent public debate nixed all 12 of the sites.

[11] Excerpted from: *"Social and Economic Planning Studies"*, July 1997. John and Michele Genereux. Research conducted under contract with the Minnesota Dept. of Natural Resources, Trails & Waterways Unit. Copies available upon request.

4. VISITOR ESTIMATES & ECONOMIC IMPACT ANALYSIS

The economic impact analysis was conducted using attendance and travel data provided by St. Joe State Park in Missouri and applying it to the Gilbert site. Results were statistically significant and are thought to provide a good indicator of anticipated visitation and related economic impact in Minnesota[12]. The projected demand for open recreational use of this facility is between 10,000 and 20,000 user-days per year, with an economic impact of between $200,000 and $400,000 per year to the local economy. Economic estimates are based on a per capita visitor spending of $20 per day. This impact is expected to occur gradually; it may require 3-5 years to attain full use of the site.

In the public opinion survey, economic conditions in Gilbert were generally rated as fair to poor. Respondents felt that a motel was the business most needed in town, and that a major industrial employer would significantly aid local economic conditions. Still, many area residents felt that the Genereux study overstates both visitor numbers and projected economic impact to the City of Gilbert. They cite anticipated negative economic consequences including added public costs for city services and infrastructure, coupled with reduced private property values and increased property taxes. Critics point to the City of Gilbert's long-term economic development plan which encourages private development of up to 400 mid-level to expensive homes north and south of the Sherwood Forest Campground along Lake Ore-be-gone. At an estimated $700 annually in new property taxes for each dwelling, such a development could potentially yield up to $280,000 in tax revenue alone for the city and county. This development, they argue, may be jeopardized by the presence of the OHVRA nearby. Moreover, critics contend that long-time regular campers at Sherwood Forest Campground may vacate that city-owned facility once OHV campers arrive, leaving the campground with increased vacancies and reduced operating income.

C. NATURAL RESOURCE ELEMENT

1. CLIMATE & AIR QUALITY

The climate of this part of Minnesota is 'continental', exhibiting cold winters and warm summers. Significant variability exists, from year to year, in measures of temperature, precipitation, and wind. The passage of fronts can change local conditions dramatically in just a matter of minutes or hours. Normal winters have the daily mean temperature at 32° F or lower and the surface soil is frozen during the winter months, (NOAA, 1982). The City of Virginia averages 27 inches of precipitation per year, with approximately 120 days receiving 0.01 inches or more. Average snowfall is 62 inches per year. The period from March to September receives approximately 75% of the annual precipitation, with the greatest mean monthly precipitation of 4.19 inches occurring in June.

Winds are predominantly from the northwest, with a secondary maximum from the south-southeast. Winter months show the most consistent northwest wind. During April and May, a more pronounced easterly component is present. By summer, southwesterly winds are not uncommon. In autumn, the bimodal northwest/southeast wind pattern returns. According to Hibbing weather data, average wind speeds are greatest in May at 10.8 mph, and calmest in summer with a minimum monthly average of 7.9 mph in August.

Wind and precipitation data are important variables in determining dust and air quality impacts. Rain and snowfall virtually eliminate dust emissions from vehicle traffic, and wind patterns can concentrate or quickly disperse airborne contaminants. The MPCA monitors regional air quality from the City of Virginia. The proximity of Virginia to the OHVRA site provides a good set of proxy data to gauge ambient air quality in and around Gilbert. Criteria used to evaluate existing air quality are existing state and federal ambient air quality standards.

[12] Application of this data to the Gilbert Site has several important caveats: 1) There other OHV trails and facilities in closer proximity to the Twin Cities than is Gilbert - this was not true in Missouri; 2) The Gilbert OHV Area will someday connect to other OHV trails and facilities - Missouri State Parks have no such connections; 3) There are twice as many OHVs per capita in Minnesota as in Missouri; 4) St. Joe State Park is larger than the Gilbert Site; and 5) No allowance was made for Special Events in estimated attendance figures. In order to project demand, these factors were ignored since they tend to cancel each other out.

2. VEGETATIVE COVER

The proposed OHVRA includes a variety of cover types *(Figure 7)*. The major types include aspen, black spruce, paper birch, Norway pine, lowland brush, and marsh. Appendix F contains a map and complete listing of cover types, acreages and forest age class distribution.

Cover types in the disturbed portion of the site are primarily aspen with some birch and balsam poplar (balm-of-gilead). These are mostly young saplings from natural seeding of the exposed soil and rock of the mining areas. The Iron Range Resources and Rehabilitation Board's (IRRRB) Mineland Reclamation Unit has planted Norway and jack pine in former mineland areas. The trees are 10-20 feet tall, and approximately 1-3 inches in diameter.

Section 36 supports a rich variety of species due to a mixture of soil types and drainage. The species mix include aspen, birch, red maple, balsam fir, black spruce, white pine, Norway pine, tamarack, jack pine, black ash and basswood. Young aspen and birch stands have resulted from stump and root sprouts following timber harvest. Stands of young pine were planted following extraction of the gravel resource. The jack pine stand in the SW corner of Sect. 36 was planted by IRRRB.

Section 36 is a state-owned, DNR-administered School Trust Fund Section managed by the Division of Forestry for timber and wildlife. Timber harvests, gravel leases and bough harvests generate income for the State's Permanent School Trust Fund. Trails & Waterways must obtain a permit (from DNR Forestry) in order to construct and operate recreational trails in Section 36. Recreational activity must not interfere with the management of natural resources or reduce income generated from this 640-acre parcel. If, at any point, recreational use should preclude active resource management, the parcel would need to be condemned and the State School Trust Fund reimbursed for the full appraised value of the parcel. Alternatively, the parcel could be leased, exchanged for non-trust fund land, or condemned and replaced with a comparable parcel purchased by DNR, Trails & Waterways and placed into School Trust Status.

3. SCENIC & VISUAL RESOURCES

The northern half of the OHVRA, that portion which will be most impacted by OHV use, is also that portion of the site most disturbed by previous mining activity. This man-made landscape has been dramatically altered by the extraction of iron ore and the creation of sizeable lakes, ore stockpiles, overburden piles, tailings basins and impoundments. Vegetation in mined areas was also removed, but has now begun to re-establish itself with the aid of reclamation efforts. Visual scars are beginning to heal, except in the areas where gravel extraction continues, and in and around the two onsite commercial operations. The OHVRA does not lie within a scenic travel corridor, nor are there any designated byways or viewsheds requiring special protection. High stockpiles and dumps (some up to 125 feet tall) are visible for some distance, however, and they will require special consideration.

It is suggested that a visual quality management plan be prepared for the proposed OHVRA in order to protect the aesthetic qualities of this site, and to enhance the recreational trail riding experience for visitors. Equally important is the need to minimize off-site noise effects and screen undesirable views from neighboring properties. Visual management planning should address all facets of facility design, construction, operations and maintenance. It should provide useful guidelines for day-to-day management of this facility. Short and long-term management goals developed as part of this plan should address timber harvesting, gravel mining, wildlife habitat improvement, riparian area management and even wildfire protection. The plan will be prepared by Trails and Waterways staff in cooperation with other DNR Area Staff.

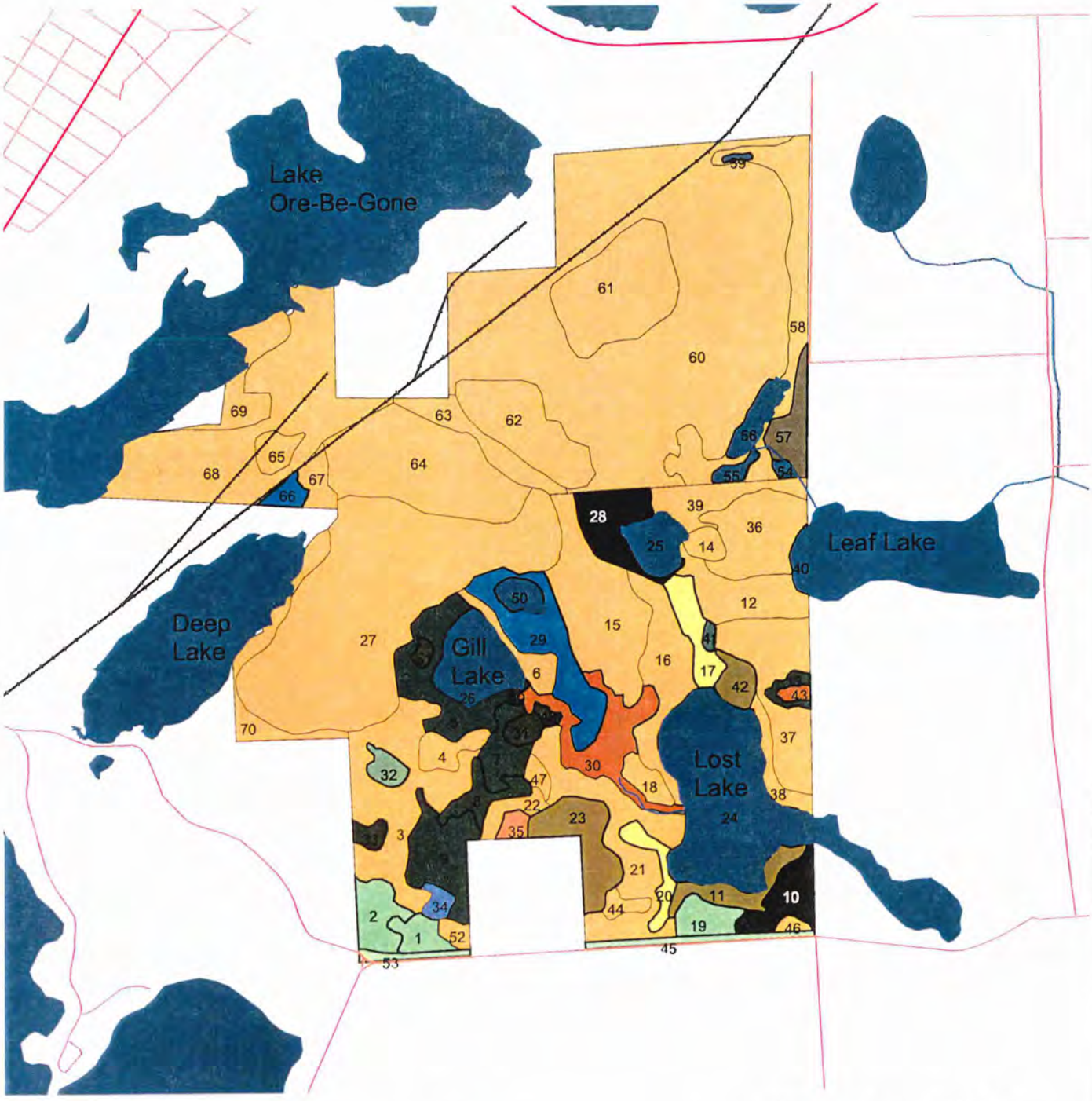
4. LAKES, STREAMS & WETLANDS

Water Basins

There are eight open water basins within the proposed OHVRA. Table 3 provides legal descriptions and land-use classifications for five of these basins: Gilbert Pit, and Deep, Leaf, Lost, and Gill Lakes. Note that four basins are classified as protected waters: Deep, Leaf, Lost and Gill Lakes; the other four basins are not so classified. The other

Figure 7. Vegetative Cover Type Map,

Iron Range Off-Highway Vehicle Recreation Area, (See Table F-1)



Legend

- Major Roads
- Minor Roads
- Rail
- Streams
- Lakes

25 - Polygon Number reference to Table 1 'Type'

Cover Type

- Ash
- Aspen
- Birch
- Norway Pine
- Jack Pine
- Balsam Fir
- Lowland Blk Spruce
- Tamarack
- Upland Grass
- Lowland Brush
- Upland Brush
- Ind. and Urban
- Roads
- Perm. Water
- Marsh
- Muskeg

1000 0 1000 Feet

Source:
Minnesota Dept of Natural Resources, Trails & Waterways Unit, 1997.

Note:
All acreage and land ownership information depictied on this map is approximate and subject to change. Please check with the St Louis County Registrar to obtain certified land records.

three small, unnamed open water basins occur at the southern edge or toe of the mined area. These lakes or ponds have most likely been influenced by mining activity, either enlarged or reduced in size, or even created by mining.

Table 3. Selected land use characteristics of lakes within or adjacent to the proposed OHVRA.

Characteristics	Deep Lake	Gilbert Pit	Leaf Lake	Lost Lk (1)	Gill Lake
DNR DOW Number	69-0666	--	69-0610	69-0611	69-0667
DOW Classification	NE (2)	--	NE	NE	NE
Unit of Government (3)	Gilbert	Gilbert	Gilbert/SLC	Gilbert/SLC	Gilbert
Legal Descriptions [T58N, R16 & 17W]	Sect.35 58-17	Sect. 25, 26, & 35, 58-17	Sect. 31 58-16	Sect 31, 58-16 Sect 36, 58-17	Sect.36 58-17

(1) Commonly known as Horseshoe Lake.
(2) NE represents a "Natural Environment" lake.
(3) SLC represents "St. Louis County", MN.
Sources: An Inventory of Minnesota Lakes, Bulletin 25, 1968 MN Conservation Dept., Div. Of Waters, Soils, and Minerals; and MN DNR Div. of Waters (DOW) files.

Water Courses & Drainage's
Neither of the two streams located on the OHVRA site are classified as state protected waters. The smaller of the two continuous streams flows along the east edge of Section 36 at the toe of a mine dump. This stream originates north of Hwy 135 and flows south into the unnamed lake, which in turn emptys into Leaf Lake. The Leaf Lake outlet flows southeast through a channelized ditch, then into Esquagama Lake, which eventually discharges into the Embarrass River. *Figure 19* shows suggested water-related setbacks.

The larger stream, actually a ditch or channel, cuts through roughly the center of the proposed OHVRA carrying the effluent discharge from the Gilbert Wastewater Treatment Plant, as well as stormwater runoff from most of Gilbert. Untreated stormwater flows into the same ditch as the plant discharge downstream from the plant.. From the treatment plant, this ditch flows along the southeast side of Hwy 135 for a distance and is then piped underground under old mining roads and under the Mesabi Bituminous access road. This flow surfaces again in the ditch that flows under the DM&IR railroad tracks and onto the site. This ditch will be fenced to protect public safety.

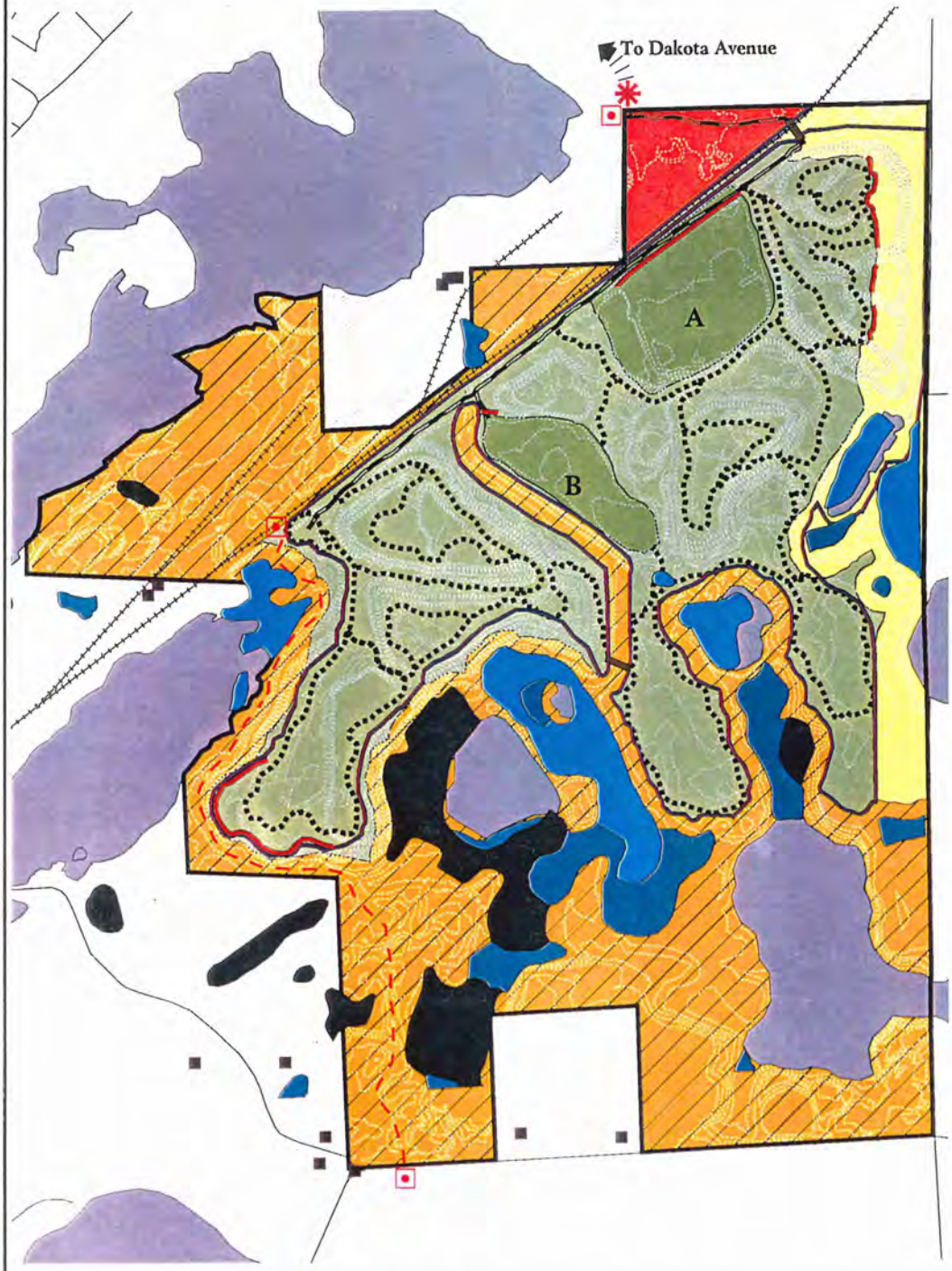
The ditch flows southeast through the OHVRA along the toe of a mine dump. At the southern end of the mine dump, the ditch turns and flows south in a channel and then into a small pond which is surrounded on two sides by bog. From this pond, the flow is dispersed into the bog which grades into a wetland meadow. From this wetland, the flow becomes concentrated into two separate channels both of which empty into Lost Lake, one on the west side, and the other on the northwest side of the lake. The outlet from Lost Lake flows into a very large wetland south of County Road 97 where the flow is dispersed. There is no continuous stream channel between Lost Lake and the Embarrass River. Run-off from impervious surfaces, including unpaved parking areas, roads and trails, will be intercepted, pre-treated if necessary, and diverted into vegetated areas. Run-off capture systems will be designed and constructed to withstand 10-year precipitation events. No adverse effects to streamflow, drainage patterns or water quality are anticipated from construction or operation of the OHVRA.

Watersheds
This proposed OHVRA occurs in two sub-watersheds of the larger Embarass River Watershed, which is in turn a component of the St. Louis River watershed. It constitutes about one-tenth of the total area of the St. Louis River watershed which is estimated to drain some 3,650 square miles. The majority of the site drains into either the Lost or Leaf lake watersheds. The Lost Lake watershed covers approximately the center two-thirds of the site. More than one-half of the City of Gilbert's stormwater runoff also drains through the Lost Lake watershed.

The Leaf Lake watershed is located north and east of Lost Lake. Both of these small watersheds empty into the Embarass River a few miles upstream of the confluence of the Embarass and St. Louis Rivers. A small portion of the site, in the extreme western end, around Deep Lake drains into Deep Lake. The outlet of Deep Lake flows less than 0.5 mile into Ely Lake. Ely Lake drains into Ely Creek which flows 3-4 miles into St. Louis River.' An even smaller portion of this site drains directly into Gilbert Pit, which has no surface outlet. Construction of the OHVRA is not expected to substantially alter local or regional water levels or watershed drainage patterns.

Fig. 8. National Wetlands Inventory Map

Proposed Iron Range Off-Highway Vehicle Recreation Area



Legend

- Project Site Boundary
- Main Entrance
- Bridge
- Staging/Main Parking
- Gates
- Noise Berms
- Fencing
- Backbone Trail Structure
- Emergency Access
- Main Interior Road (2-way)
- Existing Roads
- Railroad
- Lakes
- Special Event Areas/Parking

National Wetlands Inventory

- Emergent
- Forested
- Scrub / Shrub

- No Motorcycle or ATV Use
- No OHV Use
- Trail Area
- Buildings

LSA

N

500 0 500 1000 1500 Feet

September 1997

Sources:
Reactions, OHV Consulting
LSA Associates,Inc.
J.J. Van Houten & Associates
Minnesota Dept. of Natural Resources,
Trails &Waterways Unit
Waters Division

Wetlands

National Wetland Inventory (NWI) maps and field visits were used to identify wetlands *(Figure 8)*. State and federally-protected wetlands in proposed use areas will be field delineated by a certified wetland delineator prior to construction. Trails & Waterways' will obtain a protected waters permit for any alteration of protected waters below the ordinary high water level, as well as any other necessary federal, state or local government approvals and permits. A Minnesota Pollution Control Agency (MPCA) general National Pollutant Discharge Elimination System (NPDES) permit may be required for the discharge of stormwater during the construction phase, as well as for industrial stormwater during operation of this facility.[13] Depending upon the final site development plan, a wetlands permit from U.S. Army Corps of Engineers may also be necessary to develop this site.

5. FISH, WILDLIFE & ECOLOGICALLY SENSITIVE RESOURCES

Fisheries Resources

There are eight open water basins within or bordering the proposed OHVRA. All are shown on attached maps. DNR Fisheries has conducted biological lake surveys and fish population assessments on four of these basins: Deep Lake, Gilbert Pit (or Lake ore-be-gone), Leaf lake and Lost (or Horseshoe) Lake. *(Table 4)*. No biological studies have been done of the three small unnamed open water basins to the NE of Gill Lake. All plant and fish species identified are common to the region. The Gilbert Pit, Deep and Leaf Lake support a sport fishery.

Table 4. Selected physical/chemical characteristics of OHVRA lakes.

Lake Characteristics	Deep Lake	Gilbert Pit	Leaf Lake	Lost Lake	Gill Lake
Area (in acres)	61	223	49	76	18
Maximum Depth (in feet)	50	443	25	18	N/A
Secchi Water Clarity (in feet)	10-22	11-20	8	3	N/A
Total Alkalinity (in ppm)	168	157	131	108	N/A
Midsummer Oxygen (in feet) (1)	20	>150 (2)	13	8	N/A
Winter-Under Ice Oxygen	Good	Good	Good	Poor	N/A

Source: MN DNR, Ely Fisheries Office, 1996.
(1) Depth in feet at which at least 2 ppm oxygen exists.
(2) The oxygen probe cable was only 150 ft long.

Gilbert Pit (Lake Ore-be-gone) - Summer fishing pressure on the Gilbert Pit was estimated in 1988 at 27.2 angler-hours/acre during the open water fishing season. This is considered heavy by area standards. A 1989 winter creel survey showed a decline in winter fishing pressure, trout catch rates, and trout harvest from previous surveys *(Table 5)*. This decline, combined with a decline in summer fishing and trout catches in DNR nets, and the presence of competing fish species, notably northern pike, led DNR to discontinue stocking after 1992. The pit is still stocked with trout by IRRRB. Although fishing pressure may increase moderately with development of the OHVRA, fisheries management options are limited by the combination of warmwater fish species present, the inherent low biological productivity of the pit, and local reluctance to accept special fisheries management regulations.

[13] Land disturbance of five acres or more during construction and any vehicle servicing, washing, fueling or fuel storage, or on-going land disturbance activities triggers this NPDES permit.

Table 5. Fish captured during surveys in lakes within or adjacent to the proposed OHVRA.

Common Name	*Scientific Name*	Deep Lake	Gilbert Pit	Leaf Lake	Lost Lake
Black Bullhead	*Ameiurus melas*			X	
Black Crappie	*Pomoxis nigromaculutis*	X		X	
Blacknose Shiner	*Notropis heterolepis*			X	
Bluegill Sunfish	*Lepomis macrochirus*	X	X	X	
Channel Catfish	*Ictalurus punctatus*		X		
Fathead Minnow	*Pimephales promelas*		X		X
Golden Shiner	*Notemigonus crysoleucas*			X	
Green Sunfish	*Lepomis cyanellus*	X		X	
Hybrid Sunfish	*Lepomis sp*	X	X		
Lake Trout	*Salvelinus namaycush*		X		
Northern Pike	*Esox lucius*	X	X	X	
Pumpkinseed	*Lepomis gibbosus*	X	X	X	
Rainbow Trout	*Oncorhynchus mykiss*		X		
Rock Bass	*Ambloplites rupestris*	X	X		
Splake	*S. fontinalis X namaycush*		X		
Tadpole Madtom	*Noturus gyrinus*			X	
Walleye	*Stizostedion vitreum*		X	X	
White Sucker	*Catostomus commersoni*	X	X	X	
Yellow Perch	*Perca flavescens*	X	X	X	

Source MN DNR, Ely Fisheries Office, 1996.

Leaf, Deep and Lost Lakes - The DNR's 1988 summer aerial survey estimated fishing pressure on Leaf Lake to be 6.9 angler-hours/acre, and 4.6 angler-hours/acre on Deep Lake. Both levels are considered light to moderate by area standards. Summer fishing pressure on Lost Lake was estimated to be 0.4 angler-hours/acre, which is very light. Lost Lake is used primarily by fathead minnow trappers. Based upon the current use profile, it is unlikely that construction of the OHVRA will result in significant change in fishing pressure on these three lakes. Impacts to onsite fisheries are more likely to result from soil erosion, sedimentation and resulting water quality changes. Erosion can be controlled by employing appropriate trail designs, by avoiding erosion prone soils and slopes, and by using proper mitigation methods such as hay bales, settling basins, check dams, and vegetated filter strips. Appropriate riparian area setbacks must also be observed. *Water Quality and Wetlands Best Management Practices* can help protect surface and groundwater quality during construction and operation of the OHVRA.

Wildlife Resources

Wildlife species and cover types present on the OHVRA site are those commonly associated with second-growth forests in northeastern Minnesota. Species inhabiting the proposed project area *(Appendix Tables G1-G5)* were inferred based upon their association with identified habitat types. No formal species inventory has been conducted. The SPECLIST database program was used to identify wildlife species potentially present in the dominant habitat types, and to predict changes in wildlife richness resulting from proposed land use changes. Field reconnaissance was used to verify habitat types, and consultations with DNR Wildlife Biologists and Non-Game Specialists provided additional species, population and habitat data.

Species Lists [Tables G1-G5, Appendix G]

Approximately 131 avian species, 43 species of mammals, 9 species of amphibians and 2 reptile species may occur in habitat types within the OHVRA site. The majority of these species have a territorial range that would most likely encompass the entire site or parts of it. Wildlife species present in the project area are listed in *Tables 1-3; Table 4* lists State Endangered, Threatened and Special Concern Species. In addition, the eastern timber wolf, bald eagle, peregrine falcon and piping plover are federally-listed species known to occur in St. Louis County. *Table 5* lists sensitive plant species.

This area has a variety of natural habitat types due to topography and surface drainage, resulting in a mix of lakes, wetlands and upland habitat types. Some originated following human disturbance via ecological succession, and some are the result of planting, seeding and reclamation efforts. Even the most disturbed sites have revegetated, except where the disturbance has been continuous or recent. Forest and wetland cover types are common to Northern St. Louis County. Wildlife species that inhabit the site are similar to those found in like habitats elsewhere in northeast Minnesota. The Region II Vertebrate Species List identifies documented species and the associated habitat types used for breeding and feeding sites. None of these species is dependent upon a single habitat type found at this site.

Habitat Conditions

The northern portion of this site has been impacted by mining activities. It is vegetated with early successional (or pioneer) plant species. Such species are typically associated with young aspen and balm-of-gilead forest types along with small open grass lands. In the past, when this area was more open and had more acres of grassy cover types, sharp-tailed grouse used the tops of some mine dumps as *leeches*, or dancing grounds. Natural revegetation and ecological succession, along with changes in adjacent land use, have made conditions unfavorable for sharp-tailed grouse. No grouse are currently known to use the site. Management for sharp-tailed grouse is concentrated in the Zim, Palo and Cook areas.

Section 36 is managed for timber production, white-tailed deer, ruffed grouse, and other early successional species. Management activities include cutting smaller timber harvest blocks, creating permanent wildlife openings, constructing trails and cover seeding open areas. Generally speaking, habitat conditions in this area are suitable for a variety of wildlife species. Additional cover type and forest management information is contained in the *Vegetative Management/Forest Resource Assessment Technical Report (DNR, Fish & Wildlife, Feb. 1997).*

Natural Heritage Review - Animal Species

There are no reports in the Natural Heritage Database of threatened or endangered species dens or nests on the site. The site is within the known or historic range of peregrine falcon (endangered), bald eagle (threatened) and gray wolf (threatened). Although the site contains habitat suitable for these species, proximity to the City of Gilbert might discourage the gray wolf from using the site extensively. The property is not known to be within the territory of a wolf pack. There is an Osprey nest on an electric transmission line tower in the NE 1/4 of Section 6, T57N, R16W about 3/4 mile from the SE corner of the OHVRA boundary. Bald Eagles have also been reported to visit area lakes.

Natural Heritage Review - Plant Species

Caltha natans (Floating marsh marigold), a state-listed Endangered plant species, was found in T58N, R17W Section 35 (outside of the current project boundaries) by Olga Lakela, in 1953. *C. natans* is an aquatic plant that occurs in shallow wetlands, along lake shores and in shallow, slow-moving streams. Although the natural vegetation within the OHV project area in Section 25 was extensively disturbed by mining activities, natural communities in Section 36 do not appear to have sustained similar disturbance. Although potential aquatic habitat for *C. natans* occurs in Section 35 and 36, onsite surveys of Section 35 in 1993 and of Section 36 in 1996 did not identify the plant. However, in the absence of major land alterations, plant species do have the potential to persist in an area over long periods of time. Periodic plant surveys should be conducted to determine the status of *C. natans* in Section 36 of the OHVRA.

If state-listed aquatic plants are found, strategies will be developed to protect water quality and maintain natural water temperatures and water levels within streams, wetlands and lakes. Maintenance of the aquatic habitat also requires that vegetated buffer strips be established and maintained, where the buffer's size is determined by adjacent topography. Since indirect effects stemming from soil erosion and sedimentation may occur, even at considerable distances from the site, trail design and placement should also reflect the need to protect surface water quality.

Botrychium rugulosum and B. pallidum

Sensitive plant surveys conducted during 1997 and 1998 revealed the presence of two state-listed plant species: *Botrychium rugulosum,* or the St. Lawrence Grapefern (threatened) and *Botrychium pallidum,* the Pale Moonwort (endangered). The plants were found growing in two tailings basins on the site that had been proposed for intensive

motorized use and development, and scattered between the basins (See Appendix I). This finding prompted redesign and reconfiguration of planned developments in both basins, and it triggered additional onsite surveys which mapped the *Botrychium* population distribution.

Both species belong to the same genus, and are vascular plants belonging to the taxonomic class *Pteridophyta*, family *Ophioglossaceae [Photos in Appendix I].* The family contains two subfamilies, *Botrychioideae* (*rugulosum* belongs to this subfamily) and *Ophioglossoideae* (*pallidum* belongs to this subfamily). The grapeferns are considered primitive among living ferns. They maintain an obligate symbiosis with arbuscular mycorrhizal fungi in their roots. They lack root hairs, which facilitate nutrient and water transport in most plants, but exhibit mycorrhizal hyphae that provide minerals and facilitate water uptake, as well as providing protection from plant pathogens. Little research has been done on this symbiotic relationship, however, it is known that all wild ferns are mycorrhizal, and that *Botrychium* species have the most extensive mycorrhizal association of all. Almost all the species in the family *Ophioglossaceae* are terrestrial. Because of the complex relationship between the soils they grow in, the plants themselves, and their symbiotic fungi, cultivation is considered difficult or even impossible.

Species in the genus *Botrychium* are similar in appearance, however, variation exists within species based on the conditions where the plant grows (i.e., shade specimens appear different from full sun specimens). Under most circumstances, the casual observer will not even note their presence. The grapeferns and moonworts are found above-ground in the spring and summer. It has been observed that continuing disturbance (such as grazing) tends to favor not only establishment, but maintenance, of populations of some *Botrychium* species. It is also speculated that a third plant may be needed for viability, making the symbiosis a three-way pairing. However, no research has been done on *Botrychium* ecology and that of its mycorrhizal symbiont to establish this as fact.

Along with the identified species, there were Botrychium specimens collected that could not be identified conclusively. It is thought that these plants may be hybrids between the St. Lawrence grapefern and the leathery grapefern, or they may be an undescribed species. These indeterminate specimens are being evaluated at the University of Michigan at the request of the Minnesota DNR. The proposed project will eliminate any indeterminate or unidentified *Botrychium* species located within the tailings basins (Areas A&B). Specimens located in the upland area between the basins should not be affected by this project. Further research is recommended in order to more fully understand the *Botrychium* ecology at the OHVRA site.

St. Lawrence Grapefern *(Botrychium rugulosum)*

The St. Lawrence grapefern was first described by Wagner in 1982. It is characterized as an evergreen species because its leaves remain green over winter. It is found in areas exhibiting recent disturbance or young forests; in old, brushy pastures, meadows, and wet woods, in sandy, acid soil. *B. rugulosum* occurs with *B. dissectum*, *B. multifidum*, and rarely *B. oneidense*. It is often found in small stands of only 5-10 individuals, but some populations number over 100.

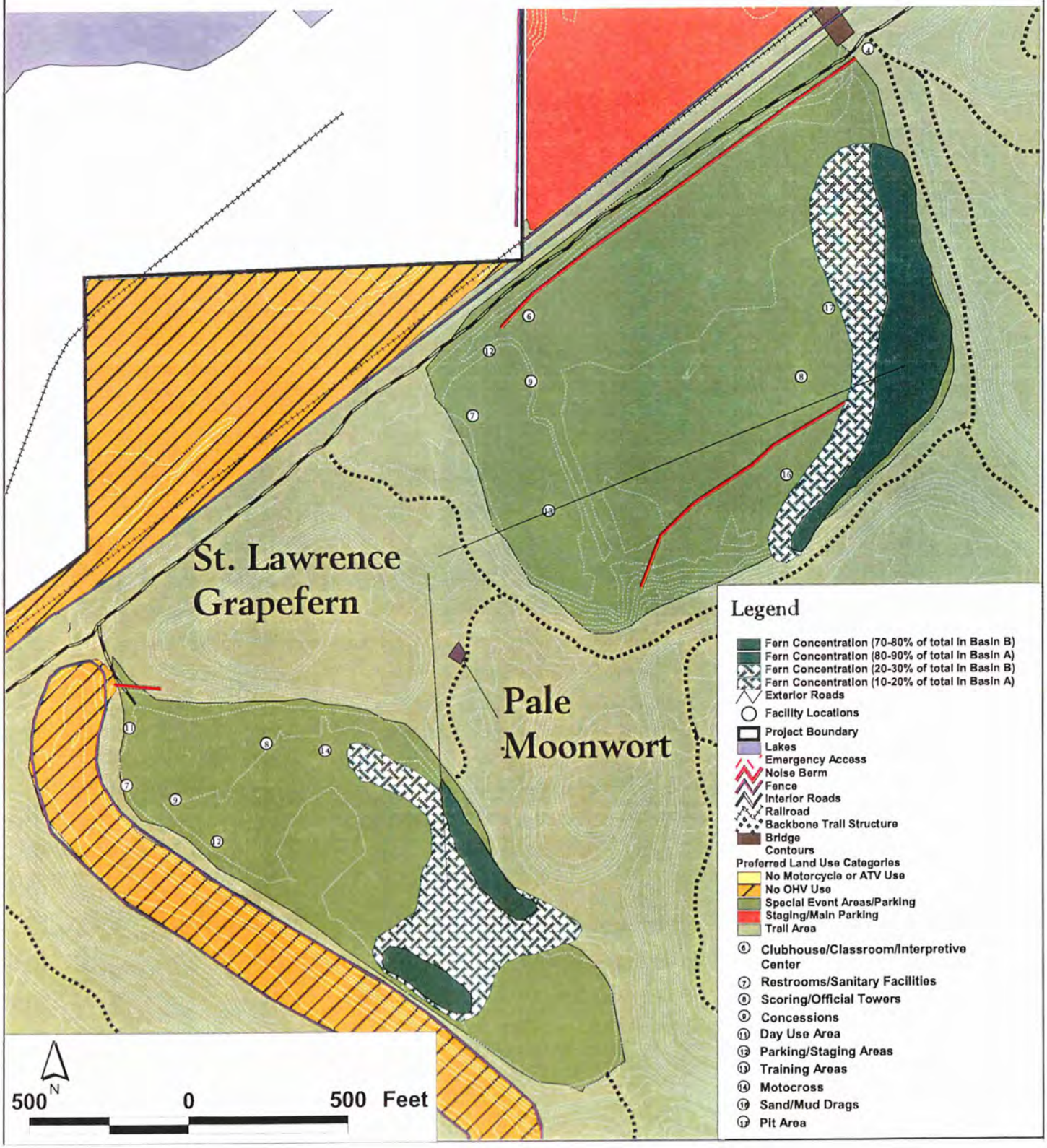
There are currently 30 confirmed records of the St. Lawrence grapefern in the DNR's Natural Heritage database, excluding the new population identified at the Gilbert Site. Nine of the 30 records include either a count or estimate of the number of plants confirmed at the site. Relative to the pale moonwort, the St. Lawrence grapefern is larger and more conspicuous, thus the specimen counts and estimates for the listed grapefern are probably a better measure of actual population size than for the listed moonwort. The nine (9) records range from a count of one, to an estimate of 50-100 plants; the average of both counts and estimates together is 18.3 plants per site.

Pale Moonwort *(Botrychium pallidum)*

The state-listed endangered species pale moonwort, *Botrychium pallidum*, also occurs at the OHVRA site. The pale moonwort was described by Wagner in 1990. It occurs sporadically, with leaves appearing in late spring and early summer. A usually tiny plant, *B. pallidum* is separable from dwarfed and narrow sun forms of *B. minganese* by the peculiar, often folded pinnae and pale green to whitish color. It has been found growing with *B. campestre*, *B. echo*, *B. hesperium*, *B. lunaria*, *B. matriariifolium*, *B. minganese*, and *B. spathulatum*. Its' small size may cause it to be overlooked. This is one of four moonwort species that commonly produce dense clusters of minute, spheric gemmae at the root bases.

Fig. 9. Distribution of State-Listed Plant Species,

Source: *DNR Ecol. Services Section, Div. of Fish & Wildlife, 1997.*



There are currently 15 records of the pale moonwort in the Natural Heritage database, (not including the OHVRA population). Seven of the 15 records include an actual count of the number of plants seen at the site. Those counts range from one to 12, averaging 3.7 plants per site. Because the plants are very small, and the gametophyte generation is entirely underground, it is likely that the actual number of individuals in each population is larger that the visual count. However, counts provide a useful estimate of the relative size of the populations.

***Botrychium* Populations and Site Conditions**

The pale moonwort population at the proposed OHVRA site is found in an area of upland cover located just to the north of the Southwest basin (Area B). During a site investigation conducted in May, 1998, about two-dozen individual pale moonwort specimens were observed. This indicates that the Gilbert population is significantly larger that any other population for which there is a recorded count. The total size of the population is not known, but field botanists estimated the total population at 50 to 100 individuals. It is almost certain that additional populations exist which have not yet been discovered. The number and size of such undiscovered populations is impossible to predict. The populations at the proposed OHVRA occur in two (2) batches located within an area of suitable habitat of approximately one acre in extent. *(See Appendix I for maps).*

Parts of the site disturbed by mining activity provide habitat suitable for the establishment and maintenance of grapefern populations. Based upon four onsite surveys, the DNR estimates that Area A contains about 7.9 acres of identified grapefern habitat, (covering approx. 20% of the basin), and Area B contains an estimated 5.4 acres of identified grapefern habitat, (approx. 25% of the basin). An additional 25-30 acres of upland located between the basins is identified as potential grapefern habitat. The total population within the two basins and in the area located between the basins is thought to number between 200 - 500 individual plants. This estimate clearly makes the Gilbert population the largest of the nine Minnesota grapefern populations for which there are recorded population estimates.

At the proposed OHVRA, approximately 40% of the grapeferns occur within Area A, 30% of the specimens occur within Basin B, and the balance of the population (30%) is found in the upland area between Basins A and B. The extent and population density of the listed grapeferns in the upland area is less certain because it has been surveyed less extensively than the in-basin populations. Grapefern populations within the basins are not evenly distributed, but are somewhat concentrated within available habitat. As such, there are habitat areas with relatively high numbers of ferns and other areas with relatively few ferns. Appendix I shows that the dark green area (of Basin A) contains approximately 80%-90% of the ferns in that basin, while the like area (of Basin B) contains approximately 70%-80% of the ferns present in that basin. Specimens may also be found on the periphery of both basins.

6. SOILS AND GEOLOGY

Bedrock Geology

The Mesabi Iron Range is a 120-mile long, 3-mile wide band of northeast-southwest lying Precambrian igneous and meta-sedimentary rocks dipping 5-15 degrees to the southeast. It is overlain by Pleistocene glacial drift deposits up to 300 feet thick. Precambrian rocks form the southern edge of the so-called "Canadian Shield". The predominant physiographic feature is the Giant's Range - a long, linear ridge consisting mostly of Precambrian granite at an elevation of from 200-400 feet higher than the surrounding terrain. The Laurentian drainage divide (or 'continental divide') follows the crest of the Giant's Range.

Paralleling the Giant's Range to the south is the Biwabik Iron Formation, from which iron ore has been mined for over 100 years. This formation, which ranges from 350-850 feet thick, is characterized by iron silicate materials, chert, magnetite, and iron-carbonate materials. Weathering processes have concentrated iron-bearing ore materials to produce lenses of "natural ores" which have been almost completely mined from the Mesabi Range. Underlying the Biwabik Formation is the Pokegama Quartzite, a micaceous meta-sedimentary rock unit ranging in thickness from 30 to 150 feet. Overlying the Biwabik Formation is the Virginia Argillite, a rock similar to slate, with a thickness greater than 2,000 feet.

Overlying the Precambrian bedrock surface are gravelly sands, silts and clays deposited by glacial meltwater some 20,000 to 100,000 years ago. Many long, linear east-west lying glacial end-moraines traverse the area. Glacial

eskers and outwash plains are also present on the landscape. Usable quantities of groundwater are available from both the local glacial drift and the Biwabik Iron Formation. Because the Biwabik formation is deeper than the glacial drift, the drift is the most common source of domestic water supplies. Several municipalities, however, do obtain water from the Biwabik Iron Formation either by sinking deep wells or by pumping water from abandoned iron ore pits. Groundwater in the glacial drift generally flows to the southeast. Flows near lakes and open pit mines, however, sometimes deviates from this direction due to the hydraulic effects of surface features.

General Description of the Soil Resource

Soil resources can be generally described as either relatively undisturbed, or those altered by mining activity. *(See Table 6 & Figure 10)*. Undisturbed soils occur primarily in Section 36. The majority of the undisturbed soils (71% or 389 acres) consist of 8-14 inches of loamy surface material (loam or silt loam textures) over a clay subsoil. The predominant soil drainage classes for this area are moderately well (60%) and somewhat poor (20%). Drainage ranges from well to very poor. A small portion (10% or 56 acres) of the area consists of coarse loamy surface material (loamy sand or sandy loam) over sand and/or gravel. About 103 acres (19%) are deep wet peat and 68 acres (12%) of wet mineral soils are also present. The areas altered by mining activities consist of "dumps" of rock fragments (334 acres), "spoils" of mineral soil (303 acres), tailings basins (62 acres) and gravel pits (26 acres). More detailed and site-specific soils data may be needed to supplement general soils data, as compiled by the Natural Resource Conservation Service (NRCS) St. Louis County Soil Survey staff.

Table 6. General soil types within and adjacent to the Iron Range OHVRA.

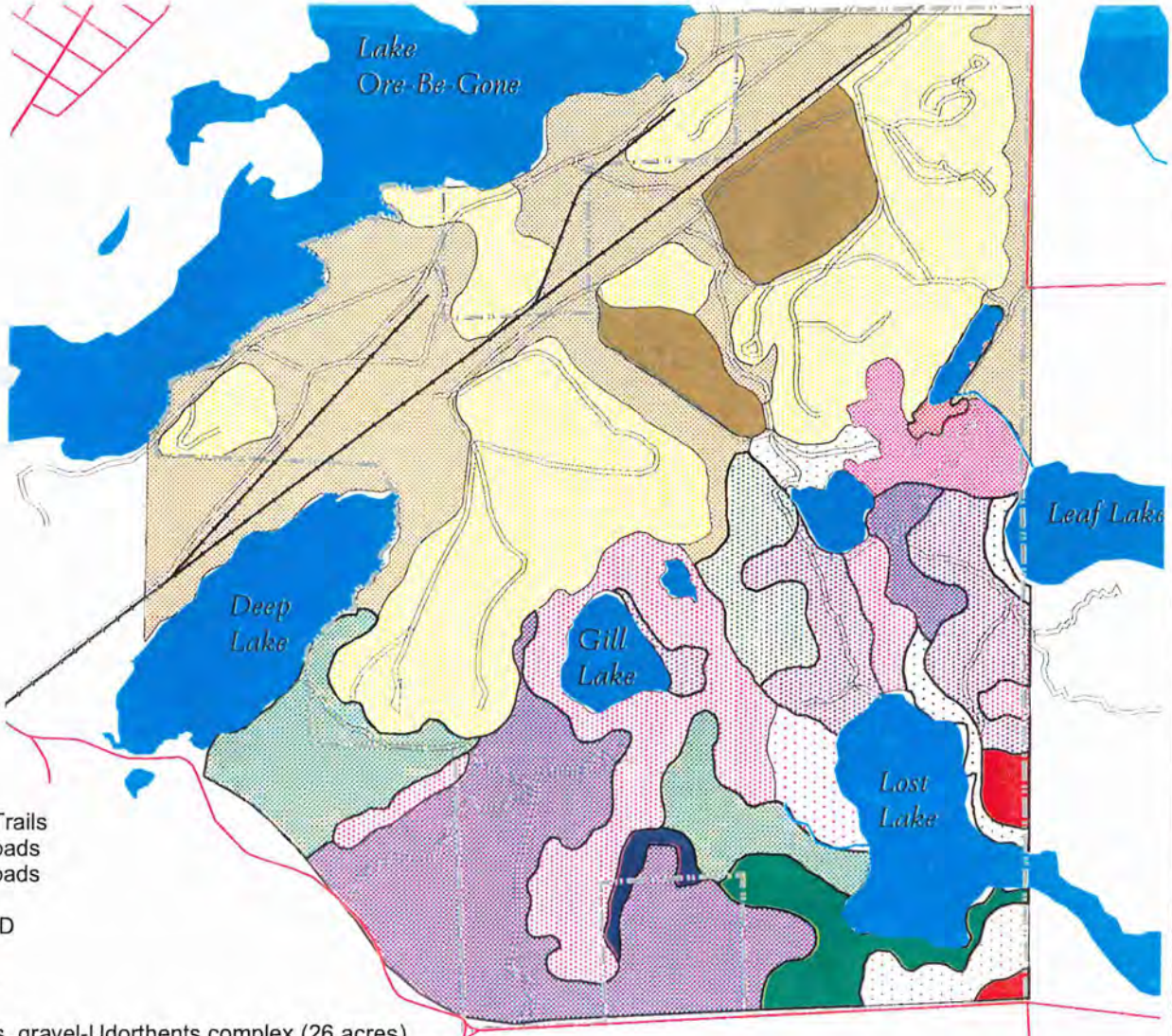
General Type	Map Unit	General Texture	Acres	Percent of site
DISTURBED	1028	Sand/Gravel	26	4
	1042	Rock	334	46
	1043	Mineral soil variable	303	41
	1044	Silts/Clays	62	8
	1053	Variable	8	1
	Subtotals		**733**	**100**
UNDISTURBED	541	Peat	103	19
	2-6A	sandy	17	3
	7-1D	sandy	27	5
	19-1A	loamy/clay	8	2
	19-2B		66	12
	19-2D		168	31
	19-3D		7	1
	19-3E		13	2
	19-5A		28	5
	19-8B		79	14
	19-9D	loamy/clay	20	4
		sand & gravel	12	2
	Subtotals		**548**	**100**
Water			159 acres	
Grand Total			**1440 acres**	

Source: MN DNR, Division of Forestry, 1996. **NOTE:** This analysis includes some areas outside of the statutory boundaries of the proposed OHVRA. Consequently, data and acreage totals may vary.

Soil Erosion Potentially erodible soils and steep slopes are found at this site. Approximately 250 acres (or 46%) of the undisturbed soils have a high erosion susceptibility rating and 115 acres (or 21%) are moderately susceptible.

Figure. 10. Soil Resource Inventory,

Source: *DNR Forest Soils Section, Div. of Forestry, 1997.*



Legend

- GPSed Trails
- Major Roads
- Minor Roads
- Rail
- OHV BND
- Lakes
- Streams

Soils Data

- 1028 Pits, gravel-Udorthents complex (26 acres)
- 1042 Dumps, iron mine (mostly rock fragments) (334 acres)
- 1043 Udorthents, nearly level to very steep (303 acres)
- 1044 Slickens (settling basins) (62 acres)
- 1053 Aquents, ponded (8 acres)
- 19-1A McQuade-Buhl complex, 0 to 3% slope (8 acres)
- 19-2B Hibbing-Buhl complex, 1 to 8% slopes (66 acres)
- 19-2D Hibbing-Buhl-Fayal complex, 0 to 18% slopes (175 acres)
- 19-3D Hibbing loam, 8 to 18% slopes (7 acres)
- 19-3E Hibbing loam (well drained), 18 to 30% slopes (13 acres)
- 19-5A McQuade-Fayal complex, 0 to 1% slope(28 acres)
- 19-8B Majestic-Hibbing complex, 2 to 8% slope(79 acres)
- 19-9D Hibbing-Cloquet complex, 8 to 18% slope(32 acres)
- 2-6A Meehan loamy sand, 0 to 2% slopes (17 acres)
- 541 Rifle peat (103 acres)
- 7-1D Biwabik-Graycalm complex, 8 to 18% slopes (27 acres)

0 0.5 Miles

Source:
Minnesota Dept of Natural Resources,
Trails & Waterways Unit,1997.

Note:
All acreage and land ownership information depicted on this map isapproximate and subject to change. Please check with the St Louis County Registrar to obtain certified land records.

When these soils occur on steep slopes (8 to 18%), the potential for erosion is greater. Erosion will likely occur when unsurfaced trails are located on these soil types, especially if vegetation and the surface litter layers are removed through use. This will pose an on-going maintenance concern, possible long-term loss in timber productivity, and increase the potential for sedimentation in adjacent wetlands and/or surface waters.

Soil Compaction
Approximately 392 acres (or 72%) of the undisturbed soils are very susceptible to compaction. These are soils with loamy surface textures. Compaction is likely to be most severe on these soils. Soil moisture conditions most conducive to compaction are unknown. Soil moisture is dependant upon soil drainage, landscape position and rate of uptake from vegetation. Hillsides would dry out quickest and lower hill slopes and level areas would tend to retain moisture longest. Moisture conditions most suited to compaction are likely to occur in the spring, fall, and summer following heavy rains. Maintaining healthy vegetation will also help to dry out the soils quicker.

Soil Rutting
About 247 acres (or 45%) of the undisturbed soils are very susceptible to rutting. These soil types occur as inclusions in many of the other better drained soil map units. Rutting interrupts the lateral subsurface flow of water, especially through soils with "hardpans" such as the Hibbing Type. This will, in effect, make the soil up-slope from the rut wetter for a longer period. Ruts also collect and hold surface water. Both conditions further decrease soil strength which can lead to additional rutting in adjacent areas. Rutting, if extensive and uncontrolled, can alter normal ecosystem processes, plant communities, and timber productivity on a localized basis.

Mining and Minerals
Approximately one-half of the OHVRA is former mineland area including mine pits, overburdon dumps, iron ore stockpiles and tailings basins. The area in T58N, R17W, Section 26 was mined beginning in 1898 at the Elba Mine and continued to the north and east into the Gilbert and Schley mines. Mining continued in this area until the early 1980's. All mining was done in the natural ore horizon, so little ore remains in this horizon. Shallow lying taconite reserves to the north and west have little potential for mining in the near future. The taconite reserves to the south and east would be deeper lying and would have to be mined using underground methods. **The OHVRA authorizing language does not preclude future mining activity[14].** Portions of the OHVRA lie within or near the 'Blast Zone' for Inland Steel's mining operations. This may require periodic temporary closures of the OHVRA to protect public safety.

All mining in this area was conducted prior to implementation of Minnesota's Mineland Reclamation Rules (1980); hence, no reclamation work was required. Pit walls are generally shear cliffs, and mine dump slopes are very steep having been placed at the angle of repose. Much of the mined area has naturally revegetated. The Iron Range Resources and Rehabilitation Board (IRRRB) has sponsored some tree planting in Section 36. The IRRRB has also constructed a campground and public water access facility on Lake Ore-be-gone in Section 25. The St. Louis County Mine Inspector's Office regulates fencing of the steep mine pits for public safety.

There is a sludge disposal site south of the rail line in Section 25 located on old tailings ponds and stockpiles. Aerial photos reveal that the tailings basins do not permanently hold surface water. Tailings areas that become devoid of vegetation (by OHV activity or other means) may become susceptable to dusting. The red stains from red ore tailings are very difficult to wash from clothing. Surface overburden dump slopes impacted by off-highway vehicle use may also become suceptable to erosion and sedimentation.

Except for the extreme northwest corner, Section 36 was not subject to mining activity. However, there remains one lean ore and surface stockpile in the northwest quarter of the section. Any underlying taconite would be deep and would require underground mining methods to extract. Presently, such mining would prove uneconomic to conduct. There are no plans at present to mine within in the OHVRA.

[14] Historically this site has been used to support iron ore mining activities by providing auxillary lands for stripped (overburdon) materials and tailings disposal. The site overlays probable iron ore and taconite resources. Therefore, no 'substantial permanent facilities' shall be constructed which might prejudice future mining decisions. Interim recreational use will not preclude future mining. There are no plans at present to mine this area. Future mining proposals will be evaluated consistent with applicable statutes, rules and regulations.

Surface Use Rights and Stockpile Ownership

Although the DNR has secured surface use rights, land and minerals ownership is complicated by a 1955 co-mingling agreement guaranteeing continued access to owners of minerals removed from the Gilbert, Hobart, Pettit and Schley mines and stockpiled on the Gilbert property. An estimated 16 million tons of iron-bearing rock (35-52% iron) and 3 million tons of tailings remain from mining operations that ceased in the 1980's. The City of Gilbert owns about 6 million tons of this stockpiled ore. Remaining mineral interests are managed by Gardner Management Services (Schley), Eveleth Fee Office (Hobart) and by the DDR Land Trust c/o Norwest Bank (Pettit). There may be other as yet unidentified owners and unprobated fractional interests.

Under Minnesota law, ore stockpiles are sometimes deemed 'personal property', hence stockpile ownership does not always transfer with changes in surface ownership. This uncertainty is compounded by questions of abandonment and/or tax-forfeiture. Although development of the OHVRA will not involve moving or mixing of stockpiles, the DNR would like to consolidate all real and personal property interests within the statutory boundaries of the proposed OHVRA prior to its construction or operation. The DNR has contacted all stockpile owners of record and asked that they consider donating any property interests that they maintain on the Gilbert site to the surface landowner (City of Gilbert or St. Louis County), in order to resolve liability concerns that may arise from future public use. Alternatively, the DNR has offered to explore the possible sale, exchange or transfer of private property interests to the State. Discussions continue with ownership groups to in order to resolve this situation.

Uncertainty remains regarding the status of some ownership claims. Additional abstract research is needed to determine rightful surface and stockpile ownership. Any agreement with stockpile owners must recognize short and long-term costs to the parties involved, the potential for project implementation delays or modification, and possible precedent that might be set for future public land and minerals dealings on Minnesota's Iron Range.

CHAPTER IV: FACILITY DESIGN AND DEVELOPMENT PLAN

A. FACILITIES DESIGN PLAN

1. PRINCIPAL DESIGN FEATURES

[Numbers coincide with those shown in Figure 1. Due to the transient nature of Features 1, 8, 15, 16, 17, 18, 19, 20, 22 and 24 these figures are not shown.]

1. Kiosks & Signing - Informational kiosks and signs will identify access points and trailheads, provide locational and destination information, identify permitted trail uses, list trail difficulty and suggested skill levels, and provide interpretive and educational messages. Signs will be placed at trailheads, intersections and along trail corridors.

2. Access Road/Maintenance Garage - This structure will house maintenance equipment and official vehicles, and it will serve as a cold-storage depot (e.g., fence posts, signs) and heated maintenance shop. This building must be of adequate size to service the anticipated needs of the facility. It will require plumbing, electricity, rest rooms, a solid cement foundation and generous apron.

3. Contact Station / Administrative Support Building - The contact station, situated at the entrance to the facility, will be used to house DNR Staff who will collect fees, distribute maps and information, and conduct vehicle inspections. This multi-purpose structure will house administrative and operations personnel, and serve as an emergency response base. An emergency response capability will be maintained during all hours of operation. This structure will require plumbing, electricity, heat, air conditioning and rest rooms.

4. Vehicle Wash-Off Area - One or more vehicle wash stations will be provided to enable visitors to clean their vehicles before leaving. This high-pressure cold water rinse area will feature a self-contained wastewater recovery system which will minimize run-off or seepage into surface or groundwater. Design plans are not yet available.

5. Multi-Purpose Events Area - Competitive events will staged on natural terrain over a distance of 1-3 miles on approximately 20-30 acres. Riders prefer courses with soft surfaces and many jumps and turns. Although most competitive events will be conducted during daylight hours; the possibility of installing lighting should be explored. The events area may be also be used for snowmobile events in winter, and for practice riding when not being used for competitive events or training.[1]

6. Clubhouse/Classroom/Interpretive Center - An enclosed, lighted and heated facility will be provided for off-road club functions, classroom training sessions, and for interpretive activities and events. Picnic tables, a barbecue pit and other improvements may eventually be added to enhance its' overall utility. This building will require plumbing, electricity, heat, air conditioning and rest rooms.

7. Restrooms/Sanitary Facilities - A combination of permanent structures and portable sanitation units will be used to meet the expected demand for sanitary facilities. Self-contained portable or vault-type toilets will be serviced by a licensed contractor with waste deposited off-site at a certified waste repository. Only permanent, year-round structures will require connection to a public water supply.

8. Fencing/Noise & Safety Berms - Fencing and gates will be used to differentiate use areas and to control ingress and egress. Some areas may also be closed temporarily during inclement weather, periods of high fire danger, or for periodic maintenance or repair. All active use areas will be fenced. Earthen berms will be constructed as necessary to improve visitor safety and reduce off-site noise effects. Berms will be seeded and planted to stabilize soils, reduce runoff and erosion potential, and to increase their overall effectiveness in reducing noise propagation.

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[1] Night time racing, requiring installation of floodlights, and the possibility of hosting day or nighttime snowmobile events are subject to approval by both the Local Area Advisory Committee and by the Gilbert City Council. These events would also require a DNR Special Use/Special Event Permit.

9. Scoring / Official Towers - One or more elevated scoring or judging towers may be erected in Special Events areas for use in monitoring competitive events. These structures are small in size, about 2.5 stories tall, and they will require electricity, but not water or sewer utilities.

10. Concessions - Portable food concessions will be located in event areas, in the parking/staging area and adjacent to day-use and picnic areas, as necessary. Concessionaires are self-contained and should not require permanent connection to water or utilities. Permanent concessions buildings will not be constructed unless or until visitor demand warrants.

11. Motorcycle/ATV Storage - A (short-term) vehicle storage facility will be constructed to enable frequent visitors to temporarily store vehicles used on-site between visits or pending needed repairs. This barn-type structure will protect stored vehicles from the weather, and feature chain-link stalls with locking gates for security.

12. Day-Use or Picnic Areas - Day use areas will include shaded cover (natural or man-made), picnic tables and benches, barbecue pits, and parking stalls. No overnight use will be permitted.

EVENT & ACTIVITY AREAS:

13. Parking/Staging Areas - Are open, flat areas designated for visitor parking, loading and unloading, and rider staging. This unpaved area will cover 3-5 acres and be delimited by fencing and natural barriers. Several smaller parking/staging areas (5-10 acre total) are planned adjacent to the Clubhouse and Special Events Area for event use. Run-off from parking/staging areas will be intercepted, pre-treated if necessary, then diverted into vegetated areas.

14. Training Areas - Training areas provide open, flat terrain for rider training and instruction. Variations in terrain will allow instructors to observe students at all times, yet challenge the rider's ability. This unpaved area will be 3-5 acres in size delimited by fencing and natural barriers. Opportunities for advanced instruction and practice riding will be generally available in the training and Special Events (tailings basins) areas.

15. Advanced Training Area - Basin B will house the advanced training facility, which will be closely monitored and access controlled to protect public safety. This area will be generally open to practice riding when not in use for organized training exercises.

16. Motorized Roads & Trails - OHV trails will will be signed to indicate permitted uses and level of difficulty. By-pass routes will be provided at difficult spots along trails for those with mechanical problems or those uncomfortable with the challenge ahead. Trails will vary in width depending upon their intended use from major access or "backbone trails" (12-14' wide) - to single-track, secondary trails (2-3' wide). Trails will be visually and spatially separated by topography and vegetation.

17. Observed Trials - Trials are slow speed motorcycle events where the equipment is quiet, lightweight and highly specialized. The object of this monitored competition is to traverse difficult terrain and obstacles without touching the ground or falling off of the motorcycle. Trials events do not require large areas or special preparations.

18. Hill Climbs - Several areas on the site are suitable for Hill Climb Competitions. Motorcycles, ATV's and 4x4 Jeeps and trucks can all participate in this type of event. These events will be held at various locations on the site subject to noise constraints and environmental limitations.

19. Non-Motorized Trails / Nature Hiking Trail - Future consideration will be given to developing a network of hiking, biking and possibly equestrian trails throughout undeveloped portions of the site (i.e., Section 36) subject to funding availability and environmental limitations. These trails will provide non-motorized access to natural features (e.g., lakes, wetlands) and allow for public use of the 1,200 site. If non-motorized trails are developed, a staging area for horses and bicyclists may need to be developed adjacent to the railroad tracks in Section 36. If developed, mountain bike trails should be capable of accommodating BMX competition events.

20. 4x4 Obstacle Course - Both natural and man-made obstacle courses and vehicle test sites are planned using native rocks, trees and (man-made) obstacles and mud pits.

21. Sand / Mud Drags - Sand and mud drag races are 4x4 and ATV events that require an approximately 100-yard linear track. Sand or mud are 'created' to provide the necessary race conditions. Local materials will be used to the extent possible. This event will take place subject to noise constraints and environmental limitations. Mud will be manufactured and contained on-site. A ound berm will be constructed adjacent to this competition area.

22. Other Events - Sponsorship of events such as the Motorcycle Grand Prix, Enduro Races, and Hare Scrambles will be considered subject to space, noise and environmental limitations. Motorcycles exceeding the 99 d(B)A vehicle noise standard may participate in Special Events competitions, as long as ambient noise levels do not exceed State Noise Standards. Winter snowmobile events will also be considered subject to these same constraints, and subject to local approvals and DNR permit requirements.

23. Emergency Access - Two gated emergency access roads will be constructed (to the standard of the primary trail system) in order to provide alternate entrance/exit points for emergency vehicle use. These gated access roads are proposed for the SW corner (onto Highway 97), and along the easterly boundary off of Pettit Road. Additional fencing may be required to limit unlawful use or entry via these official use roads.

24. Learner's Lot - It is suggested that a learner's lot be created and fenced in a flat area adjacent to parking and/or staging areas. This approximately one-acre site will provide a safe place for children to learn to ride vehicles **under 90cc of engine displacement.** A mini-motocross area can even be constructed to add interest and to make the area more enjoyable for children. The specific location of this lot has not yet been determined.

Generalized Design Features: ADA Requirements

Facility Managers are ultimately responsible for providing a safe, competent facility design featuring an adequate mix of off-road riding opportunities and visitor support facilities to provide for a 'quality' recreational experience. All OHVRA facilities shall be in compliance with provisions of *Title II* and *Title III* of the *Americans with Disabilities Act of 1990 [PL 101-336, 104 Stat. 327].* Accessibility guidelines and regulations for buildings and facilities will be followed, as will design and management recommendations contained in technical assistance guides developed by the federal Departments of Justice and Transportation, and the Architectural and Transportation Barriers Compliance Board. Additionally, specific recreational design guidebooks will be consulted by the DNR Bureau of Engineering in preparing blueprints for the OHVRA. Any future changes or revisions to the ADA or implementation guidelines will be incorporated as appropriate.

2. TRAIL SYSTEM DESIGN - CENTRAL TENETS:

a) Provide an integrated trail system that meets or exceeds user expectations.

1. The trail network must be interesting, challenging and accommodate users of all abilities.

2. Trails must be designed to encourage the rider to remain on the designated treadway. No unauthorized off-trail or cross-country travel will be permitted, except in areas designated as "open" or "scramble" areas.

3. Warm-up trails (less than 1/2 mile) should be provided in conjunction with staging areas. These trails permit riders to check their machines before embarking on long rides. By removing obstacles and avoiding steep slopes, these short loops also provide an opportunity for novice riders to practice in a safe, non-threatening environment.

4. Trails must avoid or minimize encroachment into sensitive areas, incorporating appropriate mitigations and impact reduction techniques if or when encroachment does occur.

5. Skilled, experienced engineering is required in all trail construction, reconstruction and rehabilitation to avoid fundamental design flaws and/or chronic maintenance problems.[2]

6. The OHVRA trail system should complement other state and federal trails in the area, and link to other trails, public lands, and nearby riding opportunities to the extent possible.

b) Protect natural resources and minimize potential conflict between motorized users.

1. Existing roads and trails will be closed to OHV traffic and obliterated, unless needed for official use.

2. Motorized and non-motorized uses must be carefully coordinated to minimize potential conflicts. Clearly identify non-motorized public use areas.

3. Provide separate trailheads for different users where possible. Separate uses at shared trailheads if possible, merging segregated trails after riders are spread out (i.e., 1/2 to 1 mile).

4. Design adequate sight lines and sight distances. Build trails wide enough for safe passing and/or provide periodic pull-out areas.

5. Trail design should take maximum advantage of natural berms, buffers and barriers. Screen trails for sight, sound and smells.

6. Rehabilitation of damaged areas should begin immediately upon discovery. Rehabilitation of older or pre-existing damaged areas should take place concurrently with new trail construction.

7. Form ad-hoc groups composed of both users and non-users to address sensitive issues. Ask them to provide specific suggestions and recommendations to the Citizen's Advisory Committee.

8. Where persistent conflict occurs, consider the full range of physical responses (i.e., modify trail design or layout) and management controls (i.e., spatial or temporal zoning, information/education campaign, modify rules and regulations, or stepped-up law enforcement).

c) Provide adequate administration and law enforcement.

1. Rules and regulations must be strictly and consistently enforced. Compliance with State Law is important. Establish clearly defined roles and responsibilities for State and local law enforcement and emergency services personnel.

2. A visible enforcement presence is essential. This is especially important during special events, and as changes are instituted in operating rules and regulations (e.g., switch to reduced operating hours).

3. Enforcement efforts require the use of off-highway vehicles. OHVRA staff and enforcement personnel must be proficient in the use of OHVs. Funds should be provided for specialized equipment needs.

4. Adequate signing, fencing and patrols are needed to maintain order and protect resources. Temporary area closures may also be necessary until longer-term measures can be implemented.

5. Design to control speeds where necessary by varying the surface or terrain, by making trails narrower, or by adding turns, bumps or barriers. Monitor and enforce speed zones.

[2] Inappropriately high design standards can, on the other hand, produce monotonous, boring trails that lack essential challenge and an element of interest. Clearly, a balance must be struck between good technical design and good riding design.

6. Volunteers, including area residents, should be enlisted to assist in the day-to-day operation of the OHVRA. Volunteer patrols can be very effective in fostering compliance.

7. Extend regular office hours on the weekends, during holiday periods, for special events and during other anticipated high-use periods.

d) Educate users in the proper use of OHVs in order to protect the natural environment.

1. Establish volunteer host patrols. Volunteers provide a welcome visible presence and can alert managers to potential environmental problems or unauthorized vehicle use in sensitive areas.

2. Use entry stations, bulletin boards at staging areas, and interpretive kiosks to convey environmental messages that instill a respect for nature. Positive messages get the best results.

3. Clearly explain in advance the rationale behind any newly proposed restrictions, regulations or policy changes. What is the intended policy outcome? Why is this a reasonable approach?

4. Provide users with clear, uncluttered facility maps consistent with actual on-the-ground conditions.

5. Conduct workshops or public information sessions dealing with special problems or issues that occur at the OHVRA. Advisory Committee meetings should be publicly announced well in advance.

Adequate Trail Mileage

Visitors look for a particular mix of trail length and difficulty in selecting potential off-road riding areas. Trail mileage should be distributed by trail class ('Easiest' to 'Most Difficult') with the majority of the trail mileage in the moderate classification to accommodate the average rider. Each major (backbone) trail should have an explicit purpose and set of objectives to describe how that trail is to be constructed, used, managed and maintained. Permitted uses should be clearly spelled out, along with direction of travel (if applicable), degree of difficulty, trail connections, suggested maintenance level and schedule, possible seasonal closures, information or interpretive needs, enforcement requirements, and any special needs (e.g., erosion control devices). This information should be provided to maintenance crews for scheduling periodic trail maintenance and rehabilitation events.

Trail Carrying Capacity

"Carrying Capacity" is a term commonly used to describe either the **1) Physical capacity of trails** to accommodate trail traffic, or the **2) Maximum number of users** that can use a given length of trail (usually one-mile) over a specified period of time (usually one-day) while still providing a "quality" trail riding experience. The former is a function of the design, location and condition of the trail. The latter is a social or culturally-defined variable which is difficult, if not impossible to define. Neither definition is particularly useful in describing potential limitations to overall facility use.

At the Gilbert Site, trail use is expected to be relatively heavy and constant during summer months. Consequently, this facility is specifically designed to accommodate large numbers of riders, competitors and spectators, such that their expectations will be met or exceeded. It is intended to serve as a "hub" and staging area which will eventually be linked to other motorized riding opportunities. User expectations are, therefore different for the Gilbert Site, and standard measures of carrying capacity are inapplicable. Facility Managers will act to limit trail use and/or Special Event attendance based upon physical limitations and/or the need to protect resources or visitor safety.

Loop Trails

The trail system should include multiple loops of various configurations to permit point-to-point or destination trail travel. Loop trails enable riders to complete a circuit within an area without retracing their route, thereby enhancing the experience while avoiding directional conflicts. Loop trails should be varied as to length and level of difficulty to permit a variety of experiences ranging from a brief visit to all day. Riding time is a key determinant in designing loop trail systems. Even the same user desires a mix of trail types at different times of the day. For the most part, loop trails should be limited to a single level of difficulty so that riders can complete the route without exceeding their own riding ability. Complete loop trail systems should be provided for each skill level. Frequent short loops enable riders to

retrieve disabled vehicles or switch to other (more or less difficult) trails without opposing traffic. Destinations of interest add variety to wildland trail experiences. A well-planned trail system will include loops that access lakes, streams, vistas, day-use or camping areas, scenic overlooks and interpretive sites.

Levels of Trail Difficulty[3]

A range of riding skills exist within the ranks of the OHV community ranging from novice to expert. Consequently, a system of trails must be developed featuring varying degrees of difficulty. The Iron Range OHV Recreation Area should provide trails (and corresponding signage) for **three** levels of difficulty:

- ✓ ***Green Circle - Easiest*** - This is the most highly developed class of trails (almost road-like) with no steep hills and few obstacles. Intended for novice riders who have mastered the basic skills necessary for safe operation on well-developed trails. Also intended for those lacking the experience or desire to ride more difficult trails. Approximately 10% of trails should be classified as 'Easiest'.

- ✓ ***Blue Square - More Difficult*** - Suitable for the majority of intermediate riders, more difficult trails are narrower with steeper hills and switchbacks, and some moderate obstacles. Intended for OHV enthusiasts with well-developed skills seeking a reasonably challenging trail ride. Riders subjected to higher degree of risk and exposure. Approximately 80% of trails should be classified as 'More Difficult'.

- ✓ ***Black Diamond - Most Difficult*** - Most primitive class of trails requiring a high level of skill and experience. Very steep grades, narrow trails, sharp alignments, rough or loose tread surfaces and substantial obstacles. Suitable only for proficient or expert riders to test their machines - and their own skills and abilities. Approximately 10% of trails should be classified as 'Most Difficult'.

In constructing the trails, the degree of difficulty can be assigned based upon the trail alignment, trail grade, distance or length; the number of intersections, the type and density of vegetation, trail tread width or surface type, soil stability or surface condition, number or severity of curves and/or switchbacks, the possibility of side slope travel, obstacles, and the degree of exposure or relative isolation. These factors combine to produce differing degrees of riding difficulty. **Riders must always be made aware of the level of difficulty before they embark on a trail and be provided with a return loop or bypass route in the event that the trail proves too challenging, or should they experience mechanical or medical difficulties once on the trail.**

Typically, OHV areas provide about 10 percent of trails each in the 'Easiest' and 'Most Difficult' categories, with the remaining 80 percent of trails classified as 'More Difficult'. This formula suits the behavior and riding abilities of the average visitor and should provide an appropriate mix of opportunity and challenge. It should be noted that the 10 percent of trails assigned the 'Most Difficult' rating are, by far the most difficult and expensive to maintain. This is because they are generally inaccessible to mechanized trail maintenance equipment (mechanized equipment can actually destroy their unique rugged character). Due to the dramatic topography, these trails also require frequent, labor-intensive hand maintenance. Since labor is the agency's most expensive input, volunteer labor can be especially important in helping to build, monitor and maintain the OHVRA's system of 'Most Difficult' trails.

Multiple-Use Trails

Multiple-use or shared trails are an essential feature of the Iron Range OHVRA. It is unreasonable to expect otherwise. However, shared trail use invariably raises equity questions and implies a willingness to share use rights and responsibilities. With thoughtful planning, diligent management and effective enforcement multiple-use trails can provide safe, high-quality recreation experiences without unacceptable resource impacts. Conflicts between users, however, are much more difficult to resolve. Solutions may be elusive and will require patience and collaboration both

[3] Consideration should also be given to being more descriptive in signing trail difficulty. Some OHV riding areas are switching to trailhead signs which describe, in greater detail, the trail grade, slope, length, surface, specific obstacles, etc. This, in an effort to improve visitor safety and reduce legal liability. This more descriptive approach is also intended to promote compliance with the Americans With Disabilities Act.

among users, and between users and management. The following principles can help to minimize conflicts on multiple-use or shared-use trails.[4]

1. **Recognize Conflicts for What They Are** - Recreational conflict may be best understood as interference attributed to another's behavior. Therefore, trail conflicts are possible among different user groups, within the same group, or as a result of factors unrelated to another's activity (i.e., impatience or intolerance).

2. **Provide Adequate, Equitable Trail Opportunities** - Offer adequate trail mileage and challenging riding conditions. This helps reduce congestion and tailors riding to conditions preferred by the rider. This shifts the focus from trail *activities* to trail *experiences*. Trails should vary in trms of terrain, difficulty, access, remoteness, naturalness, facilities and site management, social encounters and visitor impact. Avoid segregation of or discrimination against particular user groups.

3. **Minimize Visitor Contacts in Problem Areas** - Since each contact has the *potential* to result in conflict, reduce the number of user contacts by dispersing and separating use whenever possible. This is especially true at trailheads and other congested areas. Avoid completely isolating any one user group.

4. **Engage Users In Finding a Solution** - Work actively with all parties to reach a mutually-agreeable solution to identified problems. Involve users in trail planning and design stages if possible. Users who are not a part of the solution will continue to be a part of the problem. Promote tolerance and try to foster an "inclusive" land-use ethic.

5. **Identify User Needs and Sources of Conflict** - Assist users in identifying the 'root' causes of conflict. Get beyond stereotypes and assumptions, providing concrete evidence to support conclusions. Determine the motivations, desired experiences, norms and preferences of each user group. Anticipate and manage conflict situations.

6. **Use Positive Management Approaches** - "Light-Handed" management is demonstrably more effective in encouraging compliance because it preserves individual freedoms and choice. Intrusive designs and coercive management are not compatible with a high-quality recreational experience.

7. **Promote Trail Etiquette** - Actively and aggressively promote responsible trail behavior. Encourage positive interaction between user groups. Target educational messages and materials to reach key audiences, and present messages in a positive, easily understood manner.

8. **Closely Monitor Progress** - Monitor the effectiveness of decisions made and programs implemented. Continuous monitoring is the only way to ensure that conflicts are resolved, or whether change is needed. Monitoring is possible only within the context of clearly articulated goals and objectives for each trail or use area.[5]

3. TRAIL DESIGN AND CONSTRUCTION

In laying out trails, consideration must be given to soil and terrain conditions, surface water drainage and wetlands, vehicle noise, traffic control and rider safety. Trails should be interesting and challenging, but management friendly. User input should be solicited in constructing especially secondary trails emanating from the backbone trail system. General trail design and construction suggestions follow. For additional guidance, consult *"Off-Highway Motorcycle and ATV Trails: Guidelines for Design, Construction, Maintenance and User Satisfaction" (1994, 2nd Edition) by Joe Wernex, Published by American Motorcyclist Ass'n, Westerville, Ohio.*

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[4] Adapted from: *"Conflicts on Multiple-Use Trails: Synthesis of the Literature and State of the Practice"*, 1994. Federal Highway Administration and the National Recreational Trails Advisory Committee, U.S. Dept. of Transportation, Federal Highway Administration. Research by Roger Moore, North Carolina State University, Raleigh, NC 27695-8004.

[5] Visitor management monitoring is best done within a defined management framework, such as the *Visitor Impact Management* system developed for the National Park Service by the National Park & Conservation Assn. or the *Limits of Acceptable Change* system developed and implemented by the U.S. Forest Service.

ATV Trails

1. ATV trails require a designated route greater than 50 inches in width at ground (and handlebar) level cleared of vegetation to a height of at least eight feet above ground level.

2. Grades should not exceed 30% slope on single-track trails. Slope may be up to 40% on certain well-maintained (advanced) trails. Bypasses should be provided for all grades exceeding 25% slope unless trail is designated for advanced riders only.

3. Small scramble areas should be provided along ATV trails where possible, in open or disturbed areas (e.g., borrow pit). These areas should be between 10 and 40 acres in size. Scramble areas should not be located immediately adjacent to privately-owned property or occupied residences.

4. Trails should traverse wooded areas whenever possible and terrain should be varied and challenging. Routes should tie into loop and destination trails providing (in total) between 15 and 50 miles of riding opportunity.

Off-Road Motorcycle Trails

1. Designated single-track trails should be cleared to 50 inches in width at handlebar height and cleared to eight feet above ground horizontally.

2. Grades should not exceed 30% on single-track trails. Slope can be up to 40% on trails where maintenance equipment can be used. Bypasses should be provided for all grades exceeding 25% slope unless the trail is specifically designated for advanced riders only.

3. Dual-track trails will typically permit shared ATV use and may allow two-way travel. Although single-track, one-way trails are preferable for novice and family use, they can lead to higher rates of speed and an unwarranted sense of safety. Too often, riders experience beakdowns or find themselves traveling the wrong way on a one-way trail, only to encounter another (surprised) rider with little opportunity to pass safely.

4. While linear trails do serve to connect destinations, loop trails of 25 miles or more are preferred, since motorcyclists cannot carry much gear, and may periodically need to return to the trailhead.

5. Scramble areas should be provided adjacent to the trails (10-40 acres in size) to provide for off-trail activity. Scramble areas should not be located adjacent to privately-owned property or occupied residences.

Off-Road Truck Trails

1. Trails should be cleared to a minimum of 72 inches in width and to a height of 10 feet above ground level. Properly designed trails should accommodate an average vehicle speed of less than 5 mph.

2. Slope can be up to 40% on trails where maintenance equipment can be used. Bypasses should be provided for all grades exceeding 25% slope, unless the trail is designated for advanced drivers only.

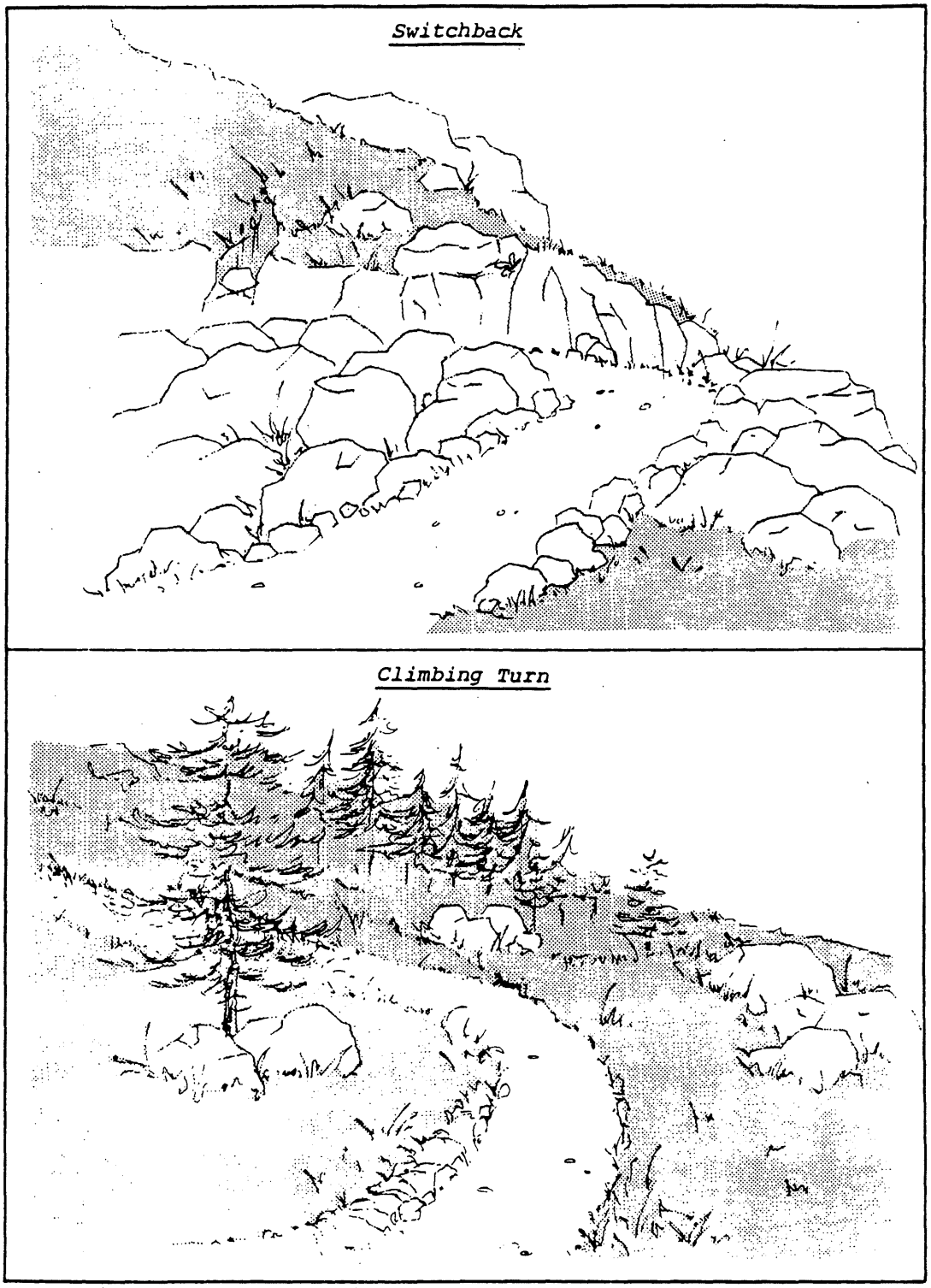
3. Trails should feature highly varied terrain and should be of loop trail design. Loops should be of less than 20 miles in length, and may be as short as 1-2 miles in length depending upon the degree of difficulty.

4. Scramble areas should be provided adjacent to the trails (10-40 acres in size) to provide for off-trail activity. Scramble areas should not be located adjacent to privately-owned property or occupied residences.

Control Points

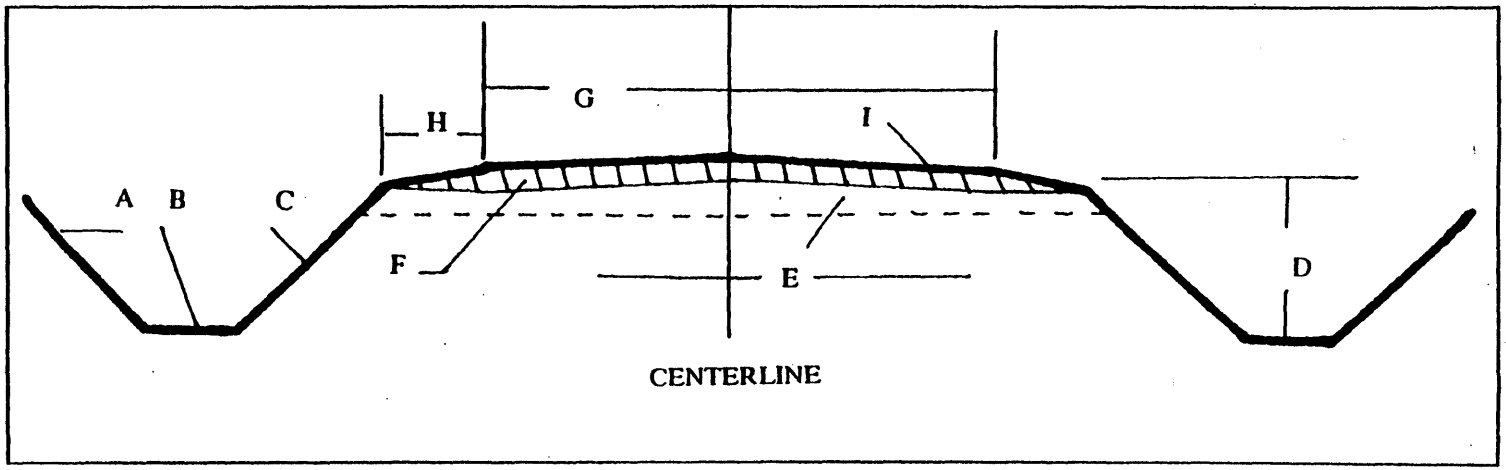
Control points, defined as anything that dictates or influences the location of the trails, should be identified during the engineering design phase. Features such as tailings basins, ore stockpiles, unstable soils, property boundaries, surface water or wetlands, or adjacent residences will greatly influence the construction and routing of trails. The exact locations of these control points in relation to trail routes should be field identified as trail routes are flagged, staked and digitized. Trail routes can then be modified and/or realigned to avoid conflicts with these points. Stockpiles, filter or buffer strips, and the DM&IR railroad tracks are examples of fixed control points.

Fig. 11. Trail Design Typical: Switchback & Climbing Turn



SOURCE: USDA, Forest Service. "Trails Management Handbook" Forest Service Handbook #2309.18, Effective 11/08/91.

Fig. 12. Trail Design Typical: Backbone Trail Cross-Section



A - BACKSLOPE
B - DITCH BOTTOM
C - SIDESLOPE
D - DITCH DEPTH
E - BASE AND SUB-BASE THICKNESS
F - GRAVEL THICKNESS
G - ROADWAY WIDTH
H - SHOULDER WIDTH
I - CROWN SLOPE

Source: *MN DNR, Div. of Forestry, 1996.*

Recommended construction techniques and specific mitigation measures include the following.

Intensive Use Areas. Minimal grading will be required in tailing basins which are already well-suited to this use. Parking areas, building sites and other high-traffic areas may also require a clay soil cover to help stabilize and compact them, while reducing dust and rutting in these high-use areas.

Special Event Courses. Competition courses will require a loose cover of fine clay soil material, which will stabilize them and allow some compaction, while retaining the characteristically high infiltration rates of loosened soil material. A small sandy portion is also needed on both the Motocross Track and the Sand Drag course to add to their level of difficulty. Competition courses should be laid out by persons experienced with this type of activity.

Hill Climbs. Erosion of abandoned hill climbs can be mitigated by seeding disturbed areas with grasses and native shrubs, and by controlling runoff that might otherwise erode planted areas. Runoff should be diverted away from incised portions of the hill. Revegetation success can be improved if hill climb events are located on north or south-facing slopes with greater moisture retention. Hill climbs should avoid loose soils and natural swales that can accumulate and discharge large volumes of runoff.

Internal Access Road. Resurfacing with aggregate material will reduce erosion potential. Appropriate drainage and the diversion of runoff to a collection point or settling basin will minimize erosion potential.

Parking Areas. Resurfacing with aggregate material will limit dust and provide a porous, permeable surface to allow water infiltration. This will reduce runoff and erosion potentials.

Trail Systems. Cut-slope erosion can be reduced by cutting slopes as steeply as possible, while retaining stability. Erosion of fill slopes can be reduced by seeding the slopes with grasses and natural shrubs, and by carefully controlling diverted runoff.

Construction in Wetlands

Wetlands provide habitat for fish and wildlife, flood protection, groundwater recharge and they filter runoff. Any construction in or around wetlands must comply with provisions of the *Minnesota Wetland Conservation Act,* the *Governor's Executive Order on No Net Loss of Wetlands,* and may be subject to the U.S. Army Corps of Engineer's regulatory authority. These regulations require that wetland impacts be avoided and minimized, to the extent possible, and where impacts cannot be avoided, replacement wetlands must be provided at a specified replacement rate.

The planning process has routed trails around wet areas to the extent possible. In those cases where trails **must cross** low, wet areas or designated wetlands the following design alternatives should be considered: (in priority order)

1. Bridge small wet areas with spans and abutments secured on either side of the wet area.

2. Construct a boardwalk using piles and decking above the wet area to allow for water movement under the trail and thereby avoiding (treadway) soil compaction.

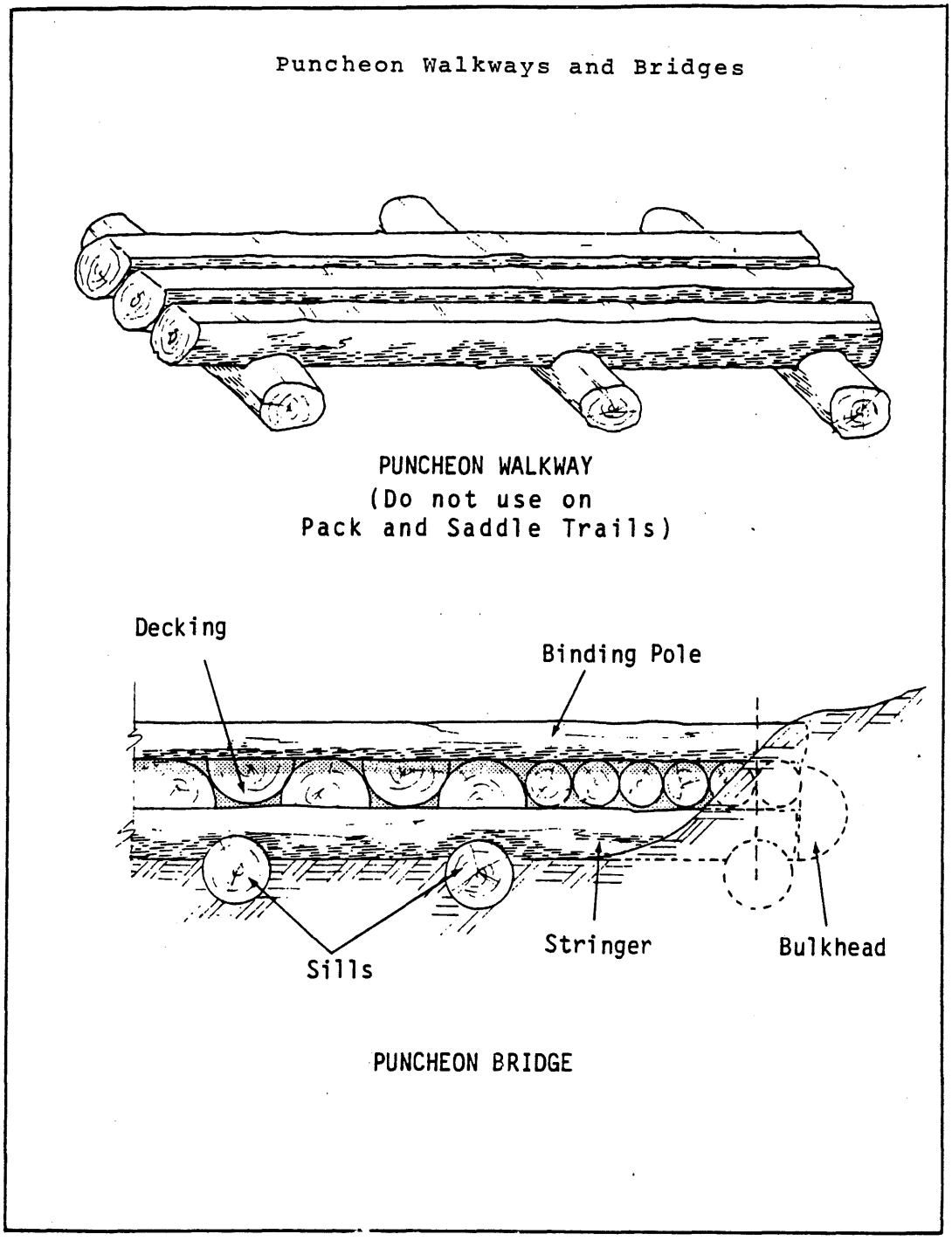
3. Install a floating boardwalk or puncheon which allows for water movement and natural wetland functioning.

All trails crossing low or wet areas using bridges or culverts should be checked regularly for possible debris build-up or other flow problems. A small crawler dozer with a six-way blade and rippers is the best piece of equipment to maintain all types of trails six feet or wider. Trails that are less than six feet wide, or are a single track, require maintenance to be done by hand or small "special" built trail dozers (such as Sweco, Morrison) that are specifically built for narrow trails.

Trail System Erosion Controls

Concentrated runoff from the trail and areas upslope should be intercepted before the volume and flow velocity become erosive and difficult to control. Divert intercepted runoff across or beneath, the trail to its outer slope.

Fig. 13. Trail Design Typical: Puncheon Walkways & Bridges



SOURCE: *USDA, Forest Service. "Trails Management Handbook" Forest Service Handbook #2309.18, Effective 11/08/91.*

Disburse diverted runoff to a natural channel downslope to limit erosive effects. Provide siltation basins in all major drainages at a natural point of exit. Always consider soil integrity in trail siting, and when gauging the appropriate level of trail use or longevity. Soil conditions can also be useful in determining intervals between major rehabilitation or restoration events. *Water Quality Best Management Practices* must be employed to protect surface water quality.

Where upslope areas are relatively small, use drainage dips to divert runoff across trail surfaces, disbursing it to the natural slope. As levels of use increase, or where runoff volume is large, diverted runoff should be carried under the trail in a culvert or pipe rather than across the trail surface. High velocity flows that develop downslope should be dissipated by using a physical barrier, such as a pile of large rocks. Diverted runoff should not be disbursed onto the surface of fill placed alongside trails, since these are sometimes unstable and easily eroded.

Road Construction

The primary OHVRA access road and the interior backbone trail structure are the principal travel corridors. The access road is a multi-lane, surfaced all-weather road for use (by all vehicles) in entering and exiting the recreation area. The backbone trail system is a one or two-lane road for off-highway and service vehicle use only. The backbone trail/road loop, which doubles as an emergency access, is also an excellent beginner or scenic loop. The *Final Design Plan (Fig. 1)* shows the backbone trail system and emergency access roads in the southwest corner to Highway 97 and along the eastern boundary to Pettit Road. Emergency access roads will be gated and only used for official use. Fencing may be required to prevent unauthorized entry or trespass via these emergency access roads.

Multi-lane roads should be surfaced with all-weather materials both to allow access during inclement weather and to help control dust. Some of the interior backbone roads may also require armoring or hardening due to their anticipated heavy traffic loads. Drainage and erosion are an integral part of all road and trail layout as discussed in the stormwater control and runoff plan and permit. Due to the diverse topography and the sensitivity of natural habitats, all newly proposed roads and trails should be carefully evaluated before any construction takes place.

Trail Signage

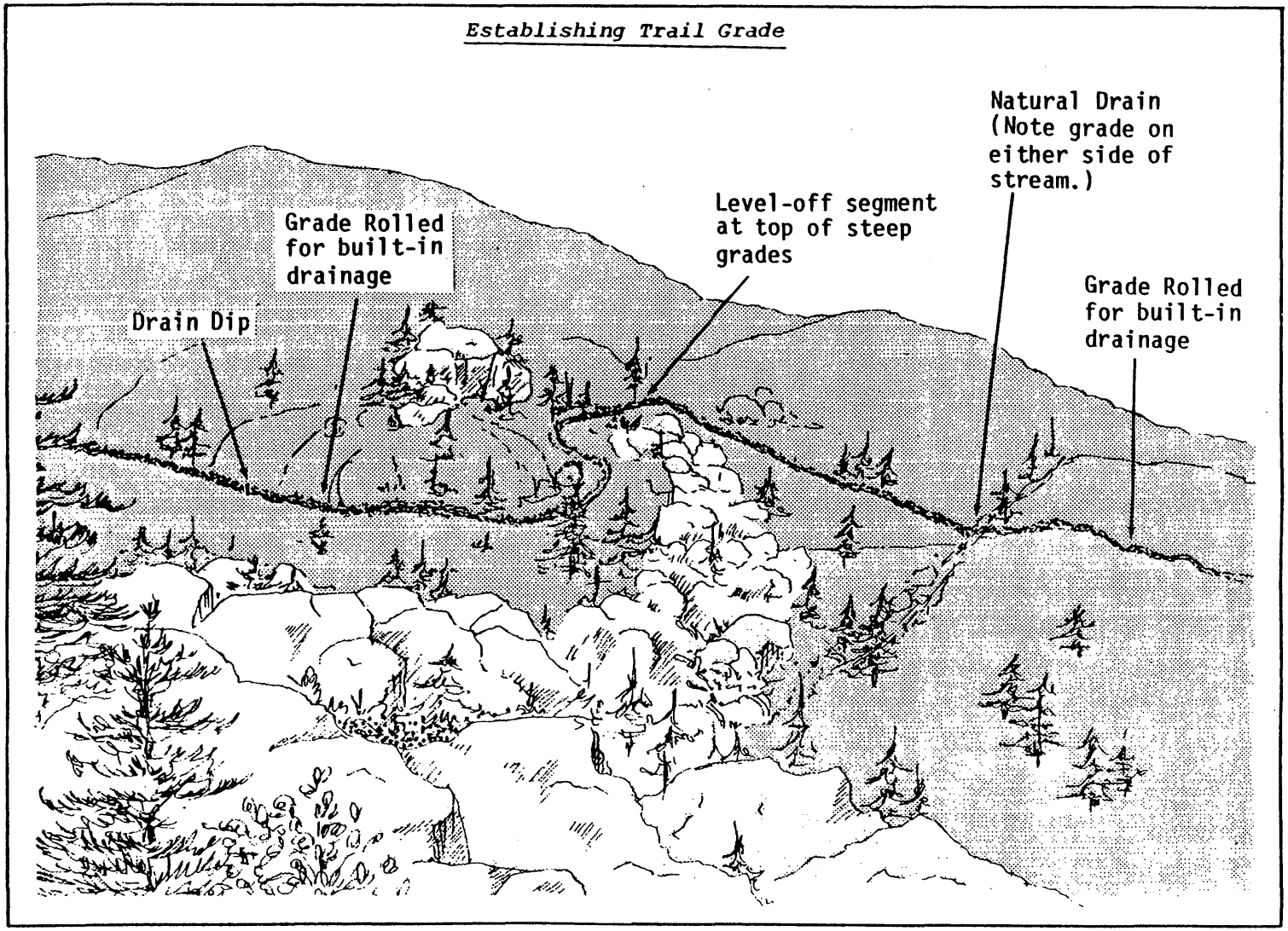
Signage should be placed at the entrance, at trailheads, trail intersections and at all public facilities. Trail maps and signs should communicate interpretive and safety messages, provide locational and traffic information, identify trail difficulty and public access points, identify intersections and trailheads, and guide visitors to public facilities. This information is important for trip planning and for emergency search and rescue efforts. Boundaries must also be posted, along with signs alerting visitors to permitted and prohibited behaviors. Rules and regulations should be plainly posted at the entrance and reprinted on all public informational materials. Signs should be rustic and unobtrusive. Avoid bright colors and synthetic materials where possible.

Final Inspection

As construction nears completion, persons knowledgeable about OHV trail construction and management should conduct a final inspection, both on foot and riding an OHV. Potential problems can be identified and repairs made before construction crews leave the job site. For the first full year following construction, active trails should be very closely monitored for spots that may require added fill, for large rocks or other obstacles that may have emerged, and for wet spots or ruts that have begun to develop. Back slopes should also be checked to ensure continued stability. Regularly scheduled maintenance should follow this initial "shakedown" year of operation.

4. FACILITIES AND ACTIVITY AREAS

This proposed facility design and operations plan is recommended for initial operations only. Should visitation or activity levels increase significantly, facility plans will require modification in order to continue to provide appropriate guidance and direction. The general location of most facilities is shown in the *Final Design Plan, (Figure 1)*. Numbered facilities are keyed to the map legend. Those facilities that are not sited, do not require a specific location. Some events (i.e., timed trials) actually benefit from using different sites to provide variety and interest for different types of competitions.



SOURCE: *USDA, Forest Service. "Trails Management Handbook" Forest Service Handbook #2309.18, Effective 11/08/91.*

Figure 14. Trail Design Typical: Establishing Trail Grade

Special Events
The two tailing basins at the OHVRA are well-suited for hosting Special Events. Events generate revenue and bring in large numbers of visitors. From a management standpoint, however, event areas can be costly, labor intensive, time-consuming, and they carry an element of risk. Consequently, it is important that event areas be properly designed, constructed and regularly maintained. Frequent inspections help ensure that both competition and spectator areas are safe and well-maintained. It is anticipated that competitive OHV events will take place 4-6 times per summer, subject to DNR and Advisory Committee approval.

Support Facilities
Support facilities include those features or improvements that contribute to the visitor's overall recreational experience. These features must be readily accessible to visitors, volunteers and staff. The quality and utility of these improvements can add greatly to the long-term success and reputation of this facility.

Vehicle Wash-Off Facilities
Pre-washing of OHVs entering the park will be encouraged, and post-washing will be required in order to limit the spread of exotic plants. No uncontrolled vehicle washing or off-property discharge will be allowed. This simplifies permitting and will substantially reduce the potential for contaminating surface or groundwater.

Vehicle wash apparatus must meet specific discharge requirements set by the U.S. Environmental Protection Agency for storm water run-off. Project engineers must decide which products, technologies and procedures they will choose to meet federal discharge requirements. This is most commonly done by limiting washing to cosmetic (high-pressure cold water) cleaning of non-hazardous items where no degreasing, two-step or non-biodegradable chemicals, aluminum brightening or battery washing is allowed. These steps can introduce heavy metals, pesticides or herbicides, antifreeze or petroleum contaminants into the discharge stream.

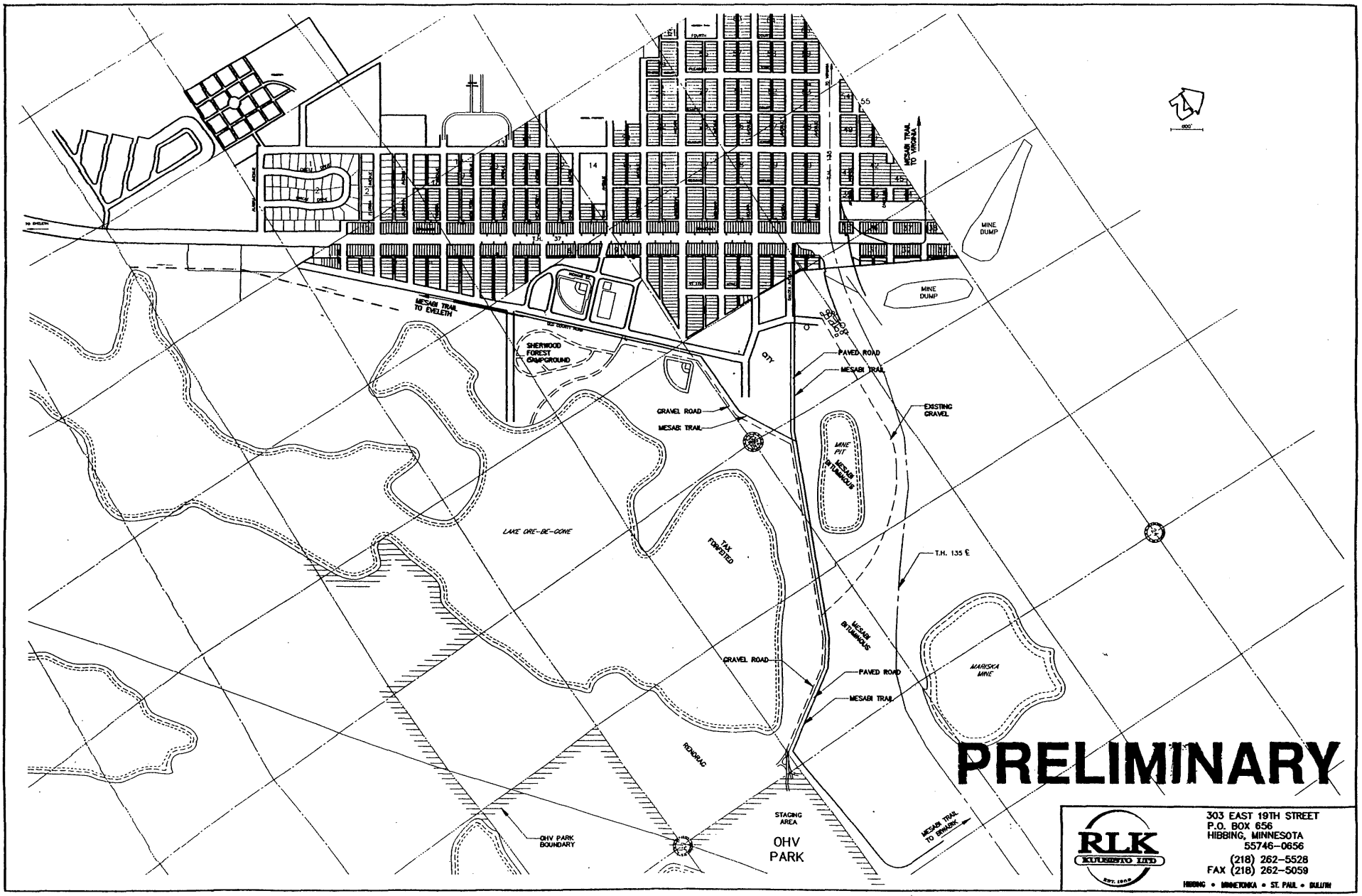
The simplest construction method involves washing vehicles as described above, in a self-contained wash bay equipped to capture, contain and treat waste water using, for example, a clarifier, oil/water separator, grease trap, sediment and debris screens, and some type of filtration and/or recycling system. Recycle units clean water only enough for washing, but not rinsing. Recycle units also do not remove detergents, dissolved solids or heavy metals. This means that if a recycling system is employed, fresh water should be provided for rinsing. Wash water should be recycled only so long as it remains within the discharge limits of the sanitary sewer, and disposed of before it tests hazardous. Sludge disposal must be at an approved local facility in an appropriate manner. Alternatives to a recycling system would include discharge of treated wastewater to either a leach-field or a septic tank. Final design plans will be disclosed in the NPDES permit application.

Dakota Avenue Extension / Campground OHV Trail
Planned extension of Dakota Avenue will be undertaken by the City of Gilbert. Construction and long-term maintenance of the approximately one-mile long city street will be a City responsibility, as will any added improvements undertaken to encourage commercial or residential development of this area. The road project is being planned, designed and will be constructed under the supervision of the Gilbert City Engineer *(Figure 15).* Interim access will be provided off of Highway 135 to the North.

An OHV trail connecting the Sherwood Forest Campground with the Iron Range OHVRA will also be constructed by the City of Gilbert with assistance from the DNR. Portions of this trail may run adjacent to the Dakota Avenue access road. This trail will permit OHV campers to travel between the campground and the OHVRA without trailering their OHVs. Sound berms will be installed as needed to reduce noise effects on adjacent properties.

Future Development of Non-Motorized Trails
The DNR will explore the potential for future development of hiking, biking and possibly equestrian trails, principally in Section 36, subject to the same rigorous environmental constraints and activity setbacks applied to initial development plans. These trails would enable visitors to enjoy natural features located on the 1,200 acre site, and provide a non-motorized alternative for those too young to operate OHVs. These trails would also provide an interpretive opportunity and outdoor classroom for nature study and resource management demonstrations. Project

Fig. 15. Proposed Dakota Avenue Extension/Campground Trail, *City of Gilbert, 1997.*



dollars may not be used in the development of non-motorized trails. Consequently, alternative funding sources will be necessary in order to construct and maintain non-motorized trails.

5. PERMANENT BUILDINGS & SUPPORT STRUCTURES

The final number of permanent structures needed for operation of the OHVRA will depend upon the overall size of the operation and the anticipated life of the facility. Some of the structures could be temporary or prefabricated structures which can be erected inexpensively and easily relocated if plans change. *Figure 1* shows building locations.

Day-Use Facilities
Picnic and rest area facilities will be located proximate to planned activities and natural amenities. Final siting and construction plans shall be determined during the engineering design phase. Sites must be readily accessible to pedestrian and OHV traffic. Each will be equipped with a fire ring and trash receptacle, parking and picnic benches. Natural and/or man-made shade will also be provided. Lakeside picnic facilities or shoreland overlooks must be setback 150' in order to comply with shoreland zoning regulations.

Contact Station and Administrative Support Buildings
The Contact Station, situated at the entrance to the facility, will house staff who will collect fees (special events only), obtain signed release/consent forms, distribute maps and other pertinent information, and conduct vehicle inspections. The Administration Building will be a multi-purpose structure that will house administrative and operations personnel, and serve as an emergency response base. First aid and emergency assistance will be provided by a certified first responder. The Maintenance Garage will house maintenance equipment and official vehicles. It will serve as a storage depot (e.g., fence posts, signs) and heated maintenance shop. It will require a solid cement foundation and a sizable cement apron. Administrative buildings will require plumbing, heating, electricity and public rest rooms.

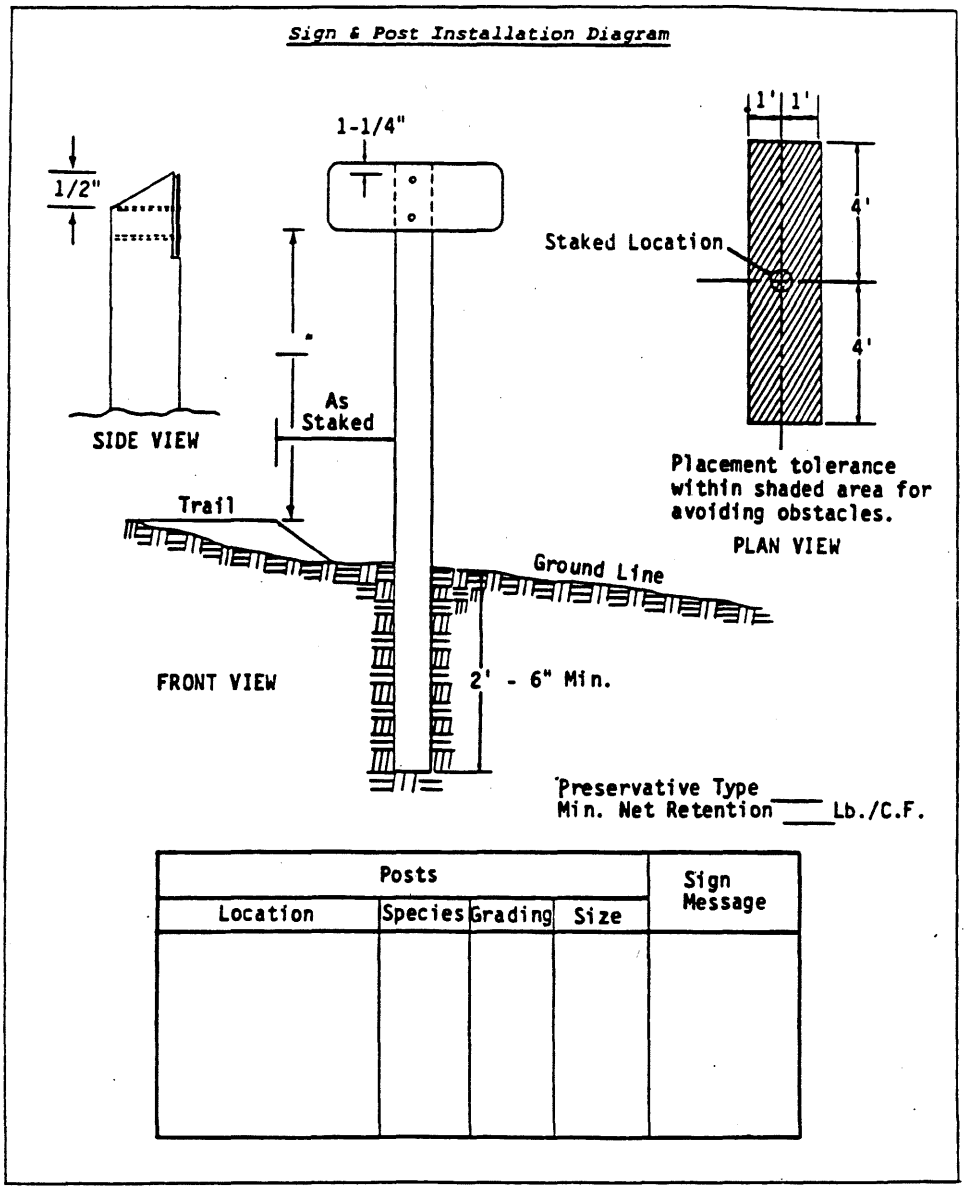
The Clubhouse/Classroom/Interpretive Center
This will be a year-round facility for off-road club functions, classroom training sessions, and for interpretive activities and events. Picnic tables, a barbecue pit, parking and other improvements may be added to enhance its' overall utility. Portable restrooms will be used until visitation levels warrant the construction of additional permanent structures.

Vehicle Wash Facility
One or more vehicle wash stations will be provided to enable visitors to rinse their OHVs before leaving (pre-wash encouraged, but not required). This high-pressure cold water rinse area will feature a self-contained wastewater recovery system which will minimize run-off or seepage into surface or groundwater supplies. Design plans are not yet available.

Berms, Buffers, Barriers and Boundaries
All OHVRA boundaries will be posted "State Land". Fencing and gates will be used to differentiate use areas and to control ingress and egress. Some areas may be restricted during inclement weather, during periods of high fire danger, or for periodic maintenance or rehabilitation. All active public use areas, including spectator and competition areas, will be fenced. Natural barriers (e.g., rocks or trees) will be used whenever possible.

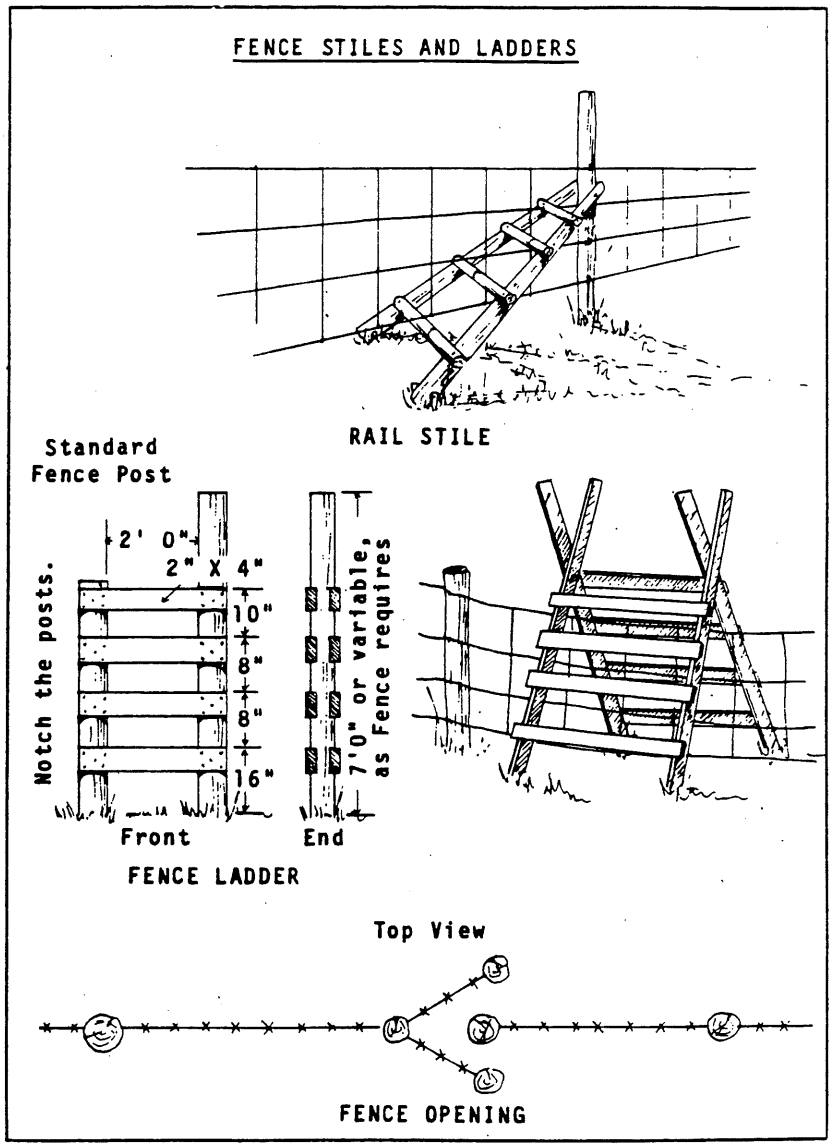
Earthen berms will be added to the tops of mine dumps in the NE and SW portions of the OHVRA, adjacent to the Special Events Area, atop the tailings pile adjacent to Leaf Lake, and possibly along the OHV Campground Trail which connects Sherwood Forest Campground and the OHVRA main entrance to reduce off-site noise effects. Berms must be at least 10 feet tall and activity must occur immediately adjacent to the buffer. Berms will be seeded and planted to stabilize soils, reduce runoff and erosion potential, and to increase their overall effectiveness in reducing noise propagation. Berms and buffers will be designed and located during the engineering design phase of the project.

Figure 16. Trail Design Typical: Sign & Post Installation



SOURCE: *USDA, Forest Service. "Trails Management Handbook" Forest Service Handbook #2309.18, Effective 11/08/91.*

Figure 17. Trail Design Typical: Fences & Ladders



SOURCE: *USDA, Forest Service. "Trails Management Handbook" Forest Service Handbook #2309.18, Effective 11/08/91.*

B. OPERATIONS ELEMENT

The Iron Range OHV Recreation Area will be operated seven days per week from May 1 to October 31st from 8:00 am to 8:00 pm, or until one hour before sunset - whichever is earlier. Winter operations, from November 15 to April 30, will be limited to Friday through Sunday, from 8:00 am daily until one hour before sunset.[6] Registered off-road trucks and jeeps, ATV's (or Quads) and off-road motorcycles that possess the required safety equipment, mufflers and spark arresters will be admitted if they comply with state noise standards *[i.e., 99 dB(A) using the SAE standardized J1287 test]*. Registered competition vehicles (with engine or exhaust modifications) will be admitted to designated event areas only for practice and competition. All operators must wear a helmet unless their vehicle is equipped with an approved roll-cage and passenger harnesses. All special events participants must wear helmets.

Vehicle checks will be conducted at the main gate. All OHVs entering the riding area, except special competition vehicles, must display a current off-road sticker. Vehicles licensed in another state need not purchase a Minnesota off-road sticker. There will be no fee for general admission or for parking, except during sanctioned Special Events. Interim access will be off of State Highway 135 and over a bridge crossing the DM&IR railroad tracks. A pedestrian crossing may also be constructed to permit non-motorized use of the (currently isolated) area northwest of the railroad tracks and immediately adjacent to Lake Ore-be-gone. All active use areas will be fenced and barriers erected to prevent unlawful entry into the OHVRA or visitor trespass onto neighboring properties.

Managing Visitor Expectations
Managing visitor expectations requires clearly defining the context within which recreational opportunities can be provided. While managers must understand what visitors need and want, visitors must likewise understand what the resource is capable of sustaining, and how their use and behavior affect the character and vitality of the facility. Informed, self-directed use can then help attain management goals and expectations. Continued dialog and active, intelligent visitor management is critical to obtaining the cooperation and partnership needed to effectively manage an off-highway vehicle facility.

1. GENERAL MANAGEMENT POLICIES & OPERATING GUIDELINES (Alphabetically Arranged)

Personal conduct shall be as prescribed in *Minnesota Statutes, Section 609.72*. The DNR's *NR-20 Natural Resource Rules & Regulations*, pertaining to outdoor recreation areas, shall be vigorously enforced. In emergency situations or in the case of special events, the Commissioner of Natural Resources may provide for temporary exceptions to established rules for the Iron Range OHVRA by posting notice of said exception at the Unit and by publishing legal notice in area newspapers. The following guidelines apply specifically to off-highway vehicle use:

Access/Exit Routes - Interim visitor access is off of State Highway 135. Permanent access will be via Dakota Avenue off of State Highway 37 (or Broadway Avenue). An off-highway vehicle trail will also be constructed between the Sherwood Forest Campground and the main gate to permit campers to travel between the campground and the OHVRA without trailering their OHVs. Emergency access will be provided to County 97 to the Southwest and to Pettit road to the East. These roads will be gated and posted "Official Use Only".

Admission - There is no regular daily or seasonal admission charge for use of the OHVRA. All vehicles must display a current off-road sticker, and fees may be charged during Special Events. The DNR reserves the right to refuse to admit anyone with substandard or non-complying equipment; those whose operating privileges have been suspended or revoked; and those determined to pose an undue risk to themselves or to others.

Alcoholic Beverages - Alcoholic beverages are prohibited, except for sale by licensed concessionaires during Special Events, and then only for sale to spectators. Operation of an off-highway vehicle while under the influence of alcohol or any other controlled substance is strictly prohibited. Violators will be prosecuted.

[6] The facility will be closed for a two-week period annually during Minnesota's firearm deer hunting season for safety reasons, and to allow DNR Staff to perform necessary maintenance and repairs.

Campfires - Campfires are permitted in designated day-use/picnic areas only within the metal enclosure provided for that purpose. Charcoal fires and cook stoves are permitted in picnic areas. Firewood can be packed in or purchased at the entrance station. **NO FIREWOOD GATHERING IS ALLOWED.**

Campsites - No overnight camping is permitted within the OHV facility. Campsites are available at the nearby Sherwood Forest Campground in the City of Gilbert, which is accessible via OHV trail.

Concessions - Food and refreshments are available from vendors and vending machines located in the concessions area. Vehicle parts and supplies are also available from the Pro-Shop. Vehicle repair facilities are located in nearby Eveleth, Gilbert and Virginia. No major vehicle repairs may be performed at the OHVRA.

Consent Forms - Completion of a liability-waiver or written consent form may be required to participate in some special events. Forms are available through event sponsors or at the Contact Station.

Contact Station/Main Gate - The Contact Station is located at the main gate to the facility. This is the primary entrance/exit point. All vehicles entering the facility must stop at this station for information, and for OHV safety equipment and sound level checks. This station will be staffed during all operating hours.

Day-Use/Picnic Areas - Several day-use areas are provided. Visitors must read and obey all posted rules and regulations. No overnight camping is permitted. All trash must be placed in receptacles or packed out.

Drinking Water - Drinking water is available at the Contact Station. Food and refreshments are available in the concessions and vending area.

Electric Plug-Ins - Electricity is available for public use at the service area. Electricity is for incidental visitor use only or as specified by Special Events Permit.

Emergency First Aid - Emergency medical services are available at the Contact Station or by calling 911. The Virginia Fire Department provides paramedic and ambulance service to the Virginia Regional Medical Center. OHVRA administrative staff are trained first responders.

Enforcement - Enforcement within the OHVRA is the responsibility of Trails & Waterways and DNR Enforcement Officers. Enforcement outside of the facility is the shared responsibility of DNR Enforcement and the Gilbert Police Department, with assistance from the Fayal and Biwabik Township Constables and the St. Louis County Sheriff's Department. The Minnesota State Patrol will also respond if needed.

Entrance Kiosk - A kiosk identifying services and amenities is provided in the main entrance area.

Emergency Search & Rescue - Emergency search and rescue services are available by contacting the Ranger Station or by calling 911. The Virginia Fire Department and/or St. Louis County Search & Rescue will respond with trained emergency personnel.

Exhibition Driving - Persons observed operating their vehicles in a careless, reckless or otherwise unsafe or irresponsible manner will be asked to leave. Repeated offenses may result in permanent ejection.

Fire Emergency - The Virginia Fire Department is charged with providing structural fire control and the Minnesota DNR provides wildfire control services for the OHV Recreation Area.

Firearms - No firearms or other weapons are permitted. No hunting is permitted, except by special permit.

Garbage - Waste disposal containers and recycling bins are located adjacent to all buildings, day-use/picnic areas, and in the special events area and parking/staging areas. Disposal of dangerous or hazardous materials (e.g., hot coals, oil or gasoline cans, solvents, batteries, tires) in waste containers is not permitted.

Gasoline - No gasoline may be stored, transported or dispensed within the OHVRA, except as specified in an approved Special Events Permit. Gasoline is available for purchase at several locations in the City of Gilbert.

Hill Climbing - Hill climbing is permitted on designated trails only, except for during sanctioned special hill climb events. Please stick to the trail. No off trail or cross-country travel is permitted, except in areas designated as "open" or "scramble areas".

Hospital - Emergency medical services are available at the Contact Station or by calling 911. The Virginia Fire Department provides paramedic and ambulance services to the Virginia Regional Medical Center.

Hours/Days of Operation

Summer Hours (May 1 - October 31): Open seven days/week from 8:00 am to 8:00 pm, or until one hour before sunset, whichever is earlier.

Winter Hours (Nov. 15 - April 30): Open Friday through Sunday from 8:00 am until one hour before sunset.

Interpretive Facilities/Displays - Interpretive signs and displays will be provided near the entrance to inform visitors of significant natural, historical and cultural features.

Lakes/Streams/Wetlands - No motorized off-trail travel is permitted in riparian or buffer areas, except for authorized vehicles.

Loading/Unloading - Off-highway vehicles may be loaded/unloaded only at designated parking/staging areas.

Maps - Trail maps are available at the Contact Station, in the concessions area and at all major trail heads. Maps of other nearby public parks and regional trail recreation opportunities are also available at the Contact Station.

Motocross - Competition motocross events are not permitted at the Iron Range OHV Recreation Area.

Motorized Vehicle Equipment:

Required Equipment - All vehicles must have functioning brakes, muffler, throttle, a federally-approved spark arrester, and possess all original factory-installed safety equipment. Vehicles may be no wider than eighty (80) inches, and designed to operate off-road (high-clearance). Vehicles must also display valid registration numbers and a current off-road use decal. See Operator Requirements.

Equipment Not Permitted - No modified or after-market exhaust devices that emit more than 99d(B)A [using the standard 20" exhaust test] will be permitted to operate. The DNR reserves the right to inspect all vehicles, and to refuse access to vehicles not meeting minimum safety or noise standards.

Noise Limits - Minnesota rules specify that off-highway vehicles emit no more than 99d(B)A at 20" from the tailpipe as specified by SAE standardized testing procedure J1287. Minnesota State Noise Regulations do not permit tampering, modification or removal of factory installed mufflers or sound suppression devices. The DNR reserves the right to inspect all off-highway vehicles at the main gate and to refuse to permit non-compliant vehicles to enter or operate in the OHVRA.

Non-Motorized Trails - Non-motorized trails are for public use and enjoyment. No motorized vehicles are permitted on pedestrian or bike trails, or in designated riparian or buffer areas. Visitors must read and comply with all informational signs and interpretive messages, and notify the Facility Manager of any damage or evidence of vehicular use in non-motorized areas.

Off-Trail or Cross-Country Travel - Visitors must remain on marked trails or within the posted boundaries of scramble and event areas. **NO OFF-TRAIL OR CROSS-COUNTRY TRAVEL IS PERMITTED.**

Operator Requirements - Operators under **AGE 12** may operate only in designated training areas and **MUST BE ACCOMPANIED BY AN ADULT AT ALL TIMES.** Operators **AGES 12-16** must possess a valid ATV

or OHM safety training certificate. Operators under age 16 may not operate a 4x4 jeep or truck. ORV operators **AGES 16-18** may operate without a safety certificate, but must possess a valid driver's license or learners permit. All persons must wear a helmet and shoes, unless riding in/on an open vehicle equipped with an approved roll cage and passenger harnesses. **ALL PERSONS UNDER AGE 18 MUST HAVE A SIGNED RELEASE FROM A PARENT OR GUARDIAN.**

Operator Skill Level - Suggested operator skill levels are posted at all trailheads for user safety and enjoyment. Operators must not drive beyond their ability.

Oil/Lubricants - No gasoline or petroleum-based products may be stored, transported or dispensed within the OHVRA, except as specified in an approved Special Events Permit. Gasoline is available for purchase at several locations in the nearby City of Gilbert.

Parking/Staging Areas - The primary parking/staging area is near the main gate and Contact Station. This area is for loading and unloading vehicles, passengers and equipment.

Passengers - Only one rider per ATV and motorcycle. **NO PASSENGERS PERMITTED EXCEPT IN THE TRAINING AREA, OR AS NECESSARY TO RETRIEVE DISABLED VEHICLES AND/OR STRANDED OR INJURED PASSENGERS.**

Pets - All pets must be leashed and licensed. Pets are permitted in non-motorized areas only.

Potable Water - Drinking water is available at the Contact Station. Food and refreshments are available in the concessions, pro-shop and vending area.

Quiet Zones - Visitors must not accelerate or gun their engine in designated "Quiet Zones" or "No Acceleration Areas". Willful disregard of noise regulations will result in temporary suspension of use privileges or permanent ejection from the facility.

Safety Equipment:

Required - All vehicles must have working brakes, mufflers, spark arresters and all original factory-installed safety equipment. No modified or after-market exhaust apparatus that exceed 99d(B)A using the standard 20" exhaust test will be permitted to operate. The DNR reserves the right to inspect all vehicles, and to refuse access to vehicles not meeting minimum safety or noise standards. All riders must wear a helmet and shoes, unless their vehicle is equipped with an approved roll cage and passenger harnesses.

Suggested - Personal safety equipment such as leather boots, gloves, pads, and eye protection are strongly encouraged. The use of headlights, taillights, brake lights, and directional signals are also recommended. Operators of 4x4 jeeps and trucks must wear safety belts or harnesses. Fire extinguishers, helmets and warning flags are also recommended for 4x4 trucks.

Snowmobile Use - Snowmobile use is not permitted, except in the events area during permitted special events.

Smoking - Smoking is allowed in designated outdoor areas only. All buildings and enclosures are "smoke-free".

Solid Waste - Waste disposal containers and recycling bins are located at the Contact Station, at all day-use/picnic areas, in the Special Events Area and in parking/staging areas. Disposal of hazardous materials (e.g., oil or gasoline cans, solvents, batteries, tires) in waste containers is not permitted.

Special Events - The designated special events area is available for conducting OHV races and other competitive events, subject to availablity and/or issuance of a required Special Events Permit. Event areas are also available for training and practice riding unless posted closed.

Special Events Permit - An approved Special Events Permit is required to use the facility for races and other special off-road events. Contact the Facility Manager for a Special Events Permit application.

Speed Limits (General) - Visitors must observe all posted speed limits. There is a 25 mph speed limit on all main roads, a 20 mph speed limit on all one-way roads, 15 mph limit within 50' of a campground, and in all parking lots and on two-way roads and trails. Special speed limits may be posted on trails.[7]

Staging/Parking Areas - The primary parking/staging area is near the main entrance and Contact Station. This area is for loading and unloading vehicles, passengers and equipment.

Telephone - Public (pay) telephones are available at the Contact Station near the main gate, and in the concessions area. Contact any uniformed staff person or volunteer for emergency telephone use.

Tow Truck/Wrecker - Visitors should contact the Facility Manager if their vehicle becomes stuck or disabled. The Manager will summon a wrecker. Wrecker charges are the visitor's responsibility.

Training Programs - The Facility Manager can provide information about OHV training opportunities, educational materials and on-site visitor programs. He/she can also describe volunteer programs and available opportunities.

Trail Etiquette: (See Operator Responsibilities)

Trail Crossings - Slow down and approach all marked trail crossings with extreme caution. Always check trail signs before switching trails.

Trail Signage - Read and obey all posted trail signs. Report any missing or damaged signs immediately.

Permitted Trail Uses - Permitted trail uses are specified at all trailheads - please read and obey the rules.

Speed Limits - Read and obey all posted speed limits.

Stay on Designated Trails - Limit travel to designated trails only. No cross-country travel is permitted, except in areas designated as "open" or "scramble" areas.

Rider Proficiency - Suggested operator skill levels are posted at all trailheads for visitor safety and enjoyment. It is the visitor's responsibility not to drive beyond their ability.

Trash - Waste disposal containers and recycling bins are located adjacent to all buildings, day-use/picnic areas, and in the Special Events Area and parking/staging areas. Disposal of hazardous materials (e.g., oil or gasoline cans, solvents, batteries, tires) in waste containers is not permitted.

Vegetated Areas - Vehicles are to remain on designated roads and trails and stay out of vegetated areas. No switch-backs, short-cuts or cross-country travel is permitted.

Vehicles (Permitted) - All standard makes and models of All-Terrain Vehicle (ATV), Off-Road Motorcycle, and 4-Wheel Drive Truck will be permitted to operate, <u>except</u> for those listed below.

Vehicles (Not Permitted) - The following vehicles will <u>not</u> be permitted entry:

1. **Vehicles that exceed the 99 d(B)A noise limit;**
2. **Vehicles that do not possess working brakes, muffler, throttle or a spark arrester;**
3. **Vehicles wider than 80 inches;**
4. **Vehicles lacking appropriate safety equipment.**
5. **Unlicensed or unregistered vehicles, or those lacking a current off-highway vehicle decal.**

[7] While the DNR recognizes that many OHVs do not have a working speedometer, visitors are expected to comply with speed restrictions to the best of their ability.

Vehicle Wash Facilities - High-pressure vehicle wash facilities are provided for public use. **Cold-water rinsing only!** Soaps, detergents, degreasers, acids, solvents or aluminum brighteners are not permitted. Pre-washing is encouraged; post-wash is required.

Violations - Violators will be ticketed and may temporarily lose riding privileges. Repeated violations will result in permanent suspension and possible fines. Criminal violators will be arrested and prosecuted.

Volunteer Opportunities - Contact the Facility Manager to learn more about available volunteer opportunities.

2. OPERATOR RESPONSIBILITIES & REQUIREMENTS

Safety and Preparedness

- ✓ Know the weather forecast and dress appropriately.
- ✓ Before riding, check your vehicle for oil and gas, tire pressure, brakes, clutch, drive chain, loose nuts or bolts, working exhaust system, etc. Read the owner's manual and know your vehicle.
- ✓ Carry spare vehicle parts (e.g., spark plug, inner tube, throttle cable) and the tools necessary to replace them. [Some parts and supplies available from concessionaires on site, but supply is limited]
- ✓ Wear the proper safety equipment for the type of vehicle you are operating. Always carry a first aid kit and cell phone if you have one.
- ✓ Carry a map of the trails you intend to ride. Tell a friend where you are going and when you plan to return.
- ✓ Never ride double on a machine designed for one rider.[8] Street legal (or dual-sport) motorcyclists may ride double **only** on the main entrance road.
- ✓ Loan your vehicle to skilled riders only. Always supervise young or inexperienced riders.
- ✓ Never operate an OHV on a road or trail at a speed greater than conditions allow.
- ✓ Be alert for ditches, ruts, drop-offs, fences and other riders. **Ride at your own risk!**
- ✓ Maintain safe following distances. Yield to other motor vehicles and pedestrians.
- ✓ Stay away from open water and thin ice.
- ✓ Remain with your vehicle if stuck or disabled until help arrives. **USE EXTREME CAUTION WHEN WALKING ON MOTORIZED TRAILS!**
- ✓ Don't take chances that endanger yourself or others.

Rules and Regulations

- ✓ You are responsible for knowing and observing all rules and regulations.
- ✓ Stay on designated trails. Read and obey all signs. Observe all posted speed limits.
- ✓ All vehicles must be licensed, registered and equipped with a working muffler, spark arrester and possess all original factory-installed safety equipment.
- ✓ **Persons under age 16 may not operate 4x4 trucks or jeeps. PERSONS UNDER AGE 12 MUST BE ACCOMPANIED BY AN ADULT AT ALL TIMES.**
- ✓ All riders must wear a helmet unless their vehicle is equipped with an approved roll cage and H-harness.
- ✓ No firearms or other weapons are permitted.
- ✓ Ride straight - no drugs or alcohol! Violators will be prosecuted.
- ✓ Underage or unlicensed ORV drivers must be accompanied and supervised by a licensed driver at all times.
- ✓ Fires are allowed in designated areas only. Please no ground fires or firewood gathering.
- ✓ Towing of anything other than another OHV is strictly prohibited.
- ✓ No riding on graded or filled banks around parking lots, along main roads or backbone trails.

Trail Etiquette

- ✓ Keep Right! Pass carefully and try not to kick up gravel or rocks.
- ✓ Stay on designated trails - no short-cuts, switch-backs or cross-country travel is permitted, except in areas designated as "open" or "scramble" areas.
- ✓ Be safe, use caution, watch for work crews and heavy equipment. Respect temporary closures.

[8] Except during sanctioned training activities, or as required in emergency situations for the rescue of stranded or injured persons.

- ✓ No racing or hot-dogging. Keep the RPM's low and steady near pedestrians, campgrounds, picnic areas, and houses. **Noise does not equal horsepower!**
- ✓ Be considerate and help keep noise, dust and traffic to a minimum.
- ✓ Don't damage trees or intrude into riparian areas, vegetative buffers or designated non-motorized areas.
- ✓ Don't harass wildlife. Leave natural features as you found them.
- ✓ Learn to read the terrain; avoid low spots and watercourses that feed wetlands.
- ✓ Stay within the facility boundaries and respect private property!
- ✓ Report any damage or violators immediately.
- ✓ Assist others who may need your help.
- ✓ Pack out your trash and dispose of properly.

3. SPECIAL EVENTS

Special events are important to the success of the OHVRA. Events can range from major national events with many competitors and spectators to small club events aimed at family participation. Either type brings added public exposure and generates income for event sponsors. Events will be permitted depending upon the type and anticipated size of the event, and subject to environmental and noise considerations. Special events are typically sponsored by clubs, racing associations, or private event promoters. Specific arrangements and permit conditions will vary depending on the type of event and expected attendance.

Special events will require the approval of DNR Trails and Waterways and issuance of a DNR Special Event Permit *[Appendix H]*. A fee may be charged to cover the DNR's out-of-pocket expenses in terms of staff time, equipment or materials needed to conduct the event and to clean-up or otherwise restore the facility to its' pre-event condition. This fee is negotiable and depends upon the level of services provided by the sponsor and by DNR. The Facility Manager will consult with the Local Area Advisory Committee to review the proposed annual schedule of special events. He/she will also notify the Gilbert City Council of all planned activities.

Special Events Objective
"Organized Special Events are intended to promote the Iron Range OHVRA, while providing a safe, well-maintained facility for the use of OHV clubs and organizations and their membership."

Frequency and Duration
Most competitive events will be conducted during daylight hours during summer months. Four to six events are planned for each summer season, or about one per month. Special events held in the evening (requiring lighting) will require special approval by the OHVRA Advisory Committee and the Gilbert City Council. Snowmobiles may also be permitted access to the OHVRA (during winter) for special events. The duration of permitted events will depend on the type of event, the number of anticipated participants and spectators and, in some cases, by the noise level generated by event activity. Registered competition vehicles will be admitted to designated event areas only. Vehicle noise limits may be waived for competitive events as long as ambient noise levels do not exceed State Noise Standards. Noise levels will be monitored by DNR Staff during approved Special Events.

Special Permit Conditions
The State of Minnesota will not sponsor 'Special Events' per se, but can sanction privately-sponsored special events subject to Special Event Permit conditions negotiated between the State and the event sponsor. Depending on the type of event, sponsors may be charged a fee or percentage of gate receipts, or may simply be required to meet bond and surety requirements sufficient to shield the State, the City and spectators from potential legal liability.

In most cases, advertising, promotions, ambulance/first aid, and event personnel are provided by the promoter. Liability insurance and a performance bond is typically required from the promoter at specified limits naming the State as an additional insured. While negotiable, fees charged event promoters are intended to recoup the state's out-of-pocket salary, equipment and maintenance costs for preparing for and cleaning up following special events staged at state-owned facilities. *A sample Special Events Permit is attached in Appendix H.*

Depending on the type of event, some or all of the following services may be required:

Parking & Traffic Control	Media / VIP Services
Shuttle Service / Transportation	Pedestrian Traffic Control
Extra Security / Enforcement	On-Site EMT and/or Ambulance
Ticket Sellers / Takers	Advertising, Promotions and Marketing
Track Preparation & Set-Up	Post-Event Clean-Up
Portable Sanitary Facilities	Concessions and Vendors
Public Address System	Trash Containers / Collection
Additional Fencing / Signing	Event Monitoring (e.g., noise, dust, air quality)
Temporary Lighting	Miscellaneous Assistance

Since the DNR is not able to handle private event promotions, events are sponsored by outside promoters, local civic groups or organized OHV clubs. Competitive events typically have rules and regulations, and some require formal sanctioning or approval by a governing body. The Facility Manager must ensure that these rules are acceptable in terms of spectator and competitor safety, and that they are consistent with the management plan for the facility. This negotiation between sponsor and manager should occur prior to the actual permit application process.

PERMITTED EVENTS:

Multi-Purpose Event Area
Both tailings basins are well-suited to building a natural terrain event area. Loose clay soil and a small area of sandy covering will be added to add to the track's challenge and level of difficulty. The design will accommodate ATV, 4x4 and motorcycle events. BMX bicycle events, training use, and winter snowmobile racing are also a possibility. **Competition motocross events will not be permitted.** Although the event area will not feature a starting gate (as in motocross), a scoring tower, spectator bleachers and a small pit area will be provided. Additional signing, fencing, security gates and sound berms may also be required. Special events requiring lighting will require special approval by the OHVRA Advisory Committee and the Gilbert City Council. Registered competition vehicles (with engine or exhaust modifications) will be admitted to **designated event areas on race days only** for practice and competition. The 99 d(B)A sound level restriction may be waived during special event competitions, as long as ambient sound levels do not exceed State Standards. Noise levels will be monitored by DNR Staff during approved Special Events.

4x4 Rock Crawl and Obstacle Course
This activity can take place either on natural terrain (e.g., rocks, felled trees) or can be man-made. Obstacle course events may be timed through a series of gates or tasks that each driver must negotiate. The 4x4 obstacle course is also a good location to train new owners of these vehicles to safely negotiate rough terrain. The Iron Range OHVRA is well-suited for hosting 4x4 jeep and truck events.

Tough-Truck Competition
An obstacle course containing jumps, turns, hills and obstacles, including mud, should be developed to permit the staging of tough truck competitions. This could be done in the Event Area, or in adjacent areas within the tailings basins where event activity is concentrated. It could be a permanent or temporary facility used for timed competitions, or for individual vehicle testing on a regular daily basis.

Sand/Mud Drags
Sand and mud drags are usually a 4x4 or dune buggy event held on a straight track. Unlike a standard drag race, sand and mud drag tracks are typically 100 yards or less. The location selected for this activity on the Gilbert Site will project vehicle noise toward Lake Ore-Be-Gone and the City of Gilbert (not nearby homes). It is recommended that all vehicles entering this area for competition be mufflered and that a large noise berm be constructed next to the track surface. If properly designed, the noise berm could also function as a spectator viewing area. Sand and/or mud will be added as appropriate in order to stage these events. Mud will be created by mixing clay and water in a permanent, concrete-lined (artificial) mud pit. This self-contained mud pit will minimize long-term maintenance costs and greatly reduce potential water quality impacts.

Pit areas are staging locations adjacent to event areas. Competitors and their support vehicles use the pit during organized events. The pit area can be a part of the main spectator parking area, or be located separately such as in the infield of a race track. The size of a pit area will vary depending on the type of vehicles competing in the event and the number of competitors. Pit areas need to be located near the starting grid and be within range of the public address system. Depending on the level of competition (i.e., professional vs. amateur), some pit areas will require fencing and security personnel. Pit areas frequently contain valuable race vehicles, tools and specialized equipment that could easily be damaged or stolen. Speed limits must also be strictly enforced in pit areas.

Observed Trials

Observed Trials are the "ballet" of motorcycle events. This competition is performed at slow speeds, requiring expert balance, agility and concentration. The equipment is quiet, light-weight and highly-specialized. The object of the sport is to navigate an array of natural and/or man-made obstacles (e.g., boulders, fallen trees) without touching the ground or falling off of the motorcycle. The terrain at the OHVRA is ideally suited for trials events and it could accommodate both international events (using entire grounds) and smaller stadium-type trials. While this specialized form of motorcycle competition is not as popular as motocross racing, it fits well with plans for the Gilbert Site.

Hill Climbs

Hill climb competitions can be held either on impossibly steep slopes that cannot be traversed, or on simpler hills where the competitor's speed is recorded. The highest point reached on steep slopes determines the winner of steep slope competitions. All types of vehicles can compete in hill climb competitions including 4x4s, ATV's and off-road motorcycles. Several locations are suitable for timed hill climbs, subject to noise and soil erosion considerations. Since uphill acceleration produces the maximum noise level possible from most machines, it cannot be located proximate to noise-sensitive properties. Vehicle noise restrictions may be lifted for hillclimb events, as long as ambient noise levels do not exceed State Noise Standards. Noise levels will be monitored by DNR Staff during approved Special Events.

Soil erosion is a key concern on hill climb sites. Because sandy or loamy soils erode very quickly, hills with clay in their composition are preferable for this purpose. If the hills are used on a regular basis, continuous repair and rehabilitation can help to maintain the integrity of soils and vegetation. Drainage control structures must also be installed and maintained to prevent soil movement into surface water or wetlands.

Motorcycle Races

Sponsorship of events such as the Motorcycle Grand Prix, Enduro Races, and Hare Scrambles will be considered subject to space, noise and environmental limitations. The **Grand Prix** is a large European motocross-type event with a course ranging in length from 3-10 miles, and utilizing many different track surfaces including hardened pavement. If an event of this type were held at the Gilbert Site, the entire facility would need to be closed to other activity to avoid potential conflict. An **Enduro** is a special competitive event in which skill rather than speed is the object. Riders maintain a pre-selected speed (ususally 20-25 mph) over a route passing through a series of checkpoints over a 60-100 mile course. **Hare Scrambles** are closed-course races over natural terrain with a loop extending over 3-8 miles. The race lasts about 2-3 hours and the winner is the motorcyclist who completes the most full laps in the alloted time. Competition bikes exceeding the 99 d(B)A noise level will be permitted to participate in Special Event competitions, as long as ambient noise levels do not exceed State Noise Standards.

Snowmobile Events

Snowmobiles may be permitted access to the OHVRA for special events. Winter use of the Special Events area will require the approval of the OHVRA Advisory Committee and the Gilbert City Council. A Special Use Permit would also be required from DNR Trails and Waterways.

Non-Motorized Events / Nature Hiking Trail

Future consideration will be given to developing a network of hiking, biking and possibly equestrian trails throughout undeveloped portions of the site subject to funding availability and environmental limitations. These trails could provide non-motorized access to natural features (e.g. lakes, wetlands) and allow for recreational use of most of the 1,200 acre site. If these trails are developed, a staging area for horses and bicyclists should be developed at the southwest corner of the OHVRA. This staging area would include parking, picnic tables, trash receptacles, portable

toilets, an orientation map and interpretive boards or displays. Project dollars may not be used to construct non-motorized trails.

Bicycle Motocross or Mountain Bike Events
This sport came from its big brother, motorcycle motocross, and is similar to supercross. BMX race courses are generally man-made for participants who ride (non-motorized) bicycles. Many tracks are built on downhill slopes in order to provide added speed and to ease the burden on competitors. The courses are usually very short (100 yards) with many jumps and corners. The overall size requirement is approximately 1-2 acres. The pit area is usually a part of the same general parking lot that spectators use. Pit racing is not generally a problem at BMX courses. A BMX course could be created at several locationswithin the OHVRA. The preferred spot would be in the northeast tailing basin next to the clubhouse training area.

Although mountain bike use on motorized trails will not be permitted during normal operating hours, special mountain-bike events could be held by temporarily closing off certain areas to OHV use. Some mountain bike competitions are very similar to motorcycle trials events and could be held in an existing parking or staging area. Because mountain bikes are non-motorized and lighter than OHVs, other (non-motorized) areas could also be considered for BMX racing. Mountain bike riding is becoming more popular each year. By accommodating mountain bike racing at the Iron Range OHVRA, the facility's user base could be expanded and annual visitation increased. This would make fuller use of the site, boost local tourism and yield added economic benefits.

Community Events
Other types of non-competitive "special events" such as picnics, parades, movies, bonfires, fireworks or dances could be conducted subject to DNR Special Permit approval. Dual-sport (motorcycle) scenic touring meets or antique car shows could also be staged at the OHVRA. Well-organized, well-publicized events of this type would boost overall attendence and should be considered a regular part of the operation. The City of Gilbert may wish to sponsor various other community-related events at the OHVRA in order to promote the facility and to boost local tourism. Local civic and fraternal groups may also wish to sponsor fundraising events, or bid for the catering contract for other events to be staged at the OHVRA.

4. PUBLIC SAFETY AND ENFORCEMENT

Public Safety & Enforcement Objective:

"Maintain an on-site enforcement presence as necessary to ensure visitor safety and security; to deter illegal or unauthorized activity; and, to provide an adequate emergency response capability. Assist organized user groups in developing on-site OHV training programs and curriculum materials."

An adequate enforcement presence, both on-site and off, will effectively deter illegal or unauthorized activity. The added workload brought about by the proposed recreation area will be split by DNR Enforcement and the Gilbert Police Department. Regular patrols, by DNR Enforcement Officers and by volunteers[9] will minimize problems within the facility. The DNR will cost-share additional enforcement needs within the City of Gilbert and outside the statutory boundaries of the facility. The Virginia Fire Department will handle emergency ambulance service for the OHVRA on a fee basis. This development does not pose an increased risk for wildfire, and the risk of wildfire within the OHVRA is also minimal. Public safety issues will be emphasized in all training programs, information materials and signage, in practice riding areas, and during vehicle and equipment inspections.

DNR Enforcement estimates some 60,000 hours of new or additional recreational use at the Iron Range OHVRA. In order to monitor roughly three percent (3%) of these added hours, an accepted standard, it will require an additional 2,000 hours of enforcement time annually. Accordingly, DNR Enforcement would need to add 1.25 full-

[9] Citizen patrols provide a welcome presence in the OHVRA, and can be very helpful in alerting enforcement personnel to illegal activity or in summoning emergency services. However, citizen volunteers are not authorized to stop, detain or arrest suspected violators, or to provide emergency medical assistance. By so doing, the volunteers would present an unacceptable legal liability both for themselves and for the State of Minnesota, the administrator of the facility.

time equivalent positions, or about 2,600 hours. Actual hours may be more or less depending upon the number and type of special events to be held each year, and depending upon the availability of City, County and other enforcement support. User patterns should become more clearly established after the first year or two of operation, allowing for a more precise estimate of enforcement needs and costs in subsequent years.

Increased enforcement staffing recommendations should be seen as minimums - not maximums. Constant monitoring and periodic re-evaluation, in collaboration with local authorities, will be necessary to determine actual enforcement needs in and around the OHVRA. Specialized equipment and/or training may also be required for area enforcement staff. Project dollars should be made available for this purpose if necessary.

On-site Trails & Waterways' staff positions will require *Level-II Enforcement Training* and authority to monitor activities within the Recreation Area. These individuals will be trained in off-highway vehicle operating rules and regulations, as well as in emergency first aid, accident investigation, report writing and evidence handling, and in dealing effectively with the public. The Iron Range OHVRA will be monitored full-time, during all hours of operation. Emergency assistance may be provided by DNR Enforcement, the Gilbert City Police Department, the Minnesota State Patrol, the Virginia Fire Department Rescue Squad, or the St. Louis County Sheriff's Department.

5. RISK MANAGEMENT CONSIDERATIONS[10]

Public recreation areas require a comprehensive, coordinated risk management program. Ultimately, the operator's level of risk and legal liability depends upon many factors including facility design and construction, facility maintenance, supervision of recreational activities, management practices and policies, and the extent to which the operator can demonstrate that *"an ordinary and reasonable standard of care"* has been exercised in making the premises safe for visitors. State and local recreational land-use statutes which define legal liability and (sometimes) set damage award limits are also important in determining who is at fault and who shall pay damages.

It is important to note that potential liability exists whether OHV facilities are constructed on DNR-administered public lands or not. The DNR is liable for all uses occurring on DNR lands, whether such use is permitted or not, even if the injured party was trespassing at the time of his/her accident! The agency's liability, albeit limited, stems from the fact that DNR employees may know that OHV use is occurring, and that potential dangers do exist. Despite this, no action is taken to halt unauthorized use or access. Indeed, the trespass itself may be attributable to the failure of the agency to provide legitimate, managed trail opportunities to meet identified needs in the area.. **Potential liability is almost always reduced when the activity is managed rather than ignored or neglected.** Properly designed and managed trails greatly improve the safety of OHV recreation, even in areas where greatly increased use results from official designation.

Minnesota Liability Statutes
Minnesota tort claims statutes *(MS Chap. 3.3736, Subd. 3)* prevents the State of Minnesota from paying personal injury or property loss claims resulting from: *(excerpted)*

- Losses caused by an act or omission of a state employee **exercising due care** in the execution of *(their duties)*..
- Losses caused by the performance or failure to perform a **discretionary duty**...
- Losses, except when **affirmatively caused by the negligent acts** of a State employee..
- Losses caused by the condition of **unimproved real property owned by the state,** including idled or abandoned mine pits...
- Losses incurred by users arising from the **construction, operation or maintenance of Minnesota's Outdoor Recreation System**, as defined by *MS Section 86A.04,* or grant-in-aid trail systems...

[10] For mor information, see *"How to Control Liability and Risk in Volunteer Programs"*, 1998. MN Office of Citizenship and Volunteer Services, et al. St. Paul, MN 55155.

Liability Protection For Other Public and Private Landowners

Minnesota Statutes Chapter 604A.20 provide limited liability protection for private landowners that permit public recreational use of their property. Although the landowner is not responsible for ensuring that the land is safe or for warning recreational users of potentially dangerous conditions, State Statutes will not protect the landowner in the event of misconduct or gross negligence. Potential liability also exists for conduct which "entitles a *trespasser* to maintain an action and obtain relief" *(MS Sect. 604A.25).* Under Minnesota case law, landowners have a duty to trespassers if the landowner knows, or should have known, that trespassers intrude upon land on which the owner has created or maintains unsafe or dangerous conditions - if the owner has failed to exercise reasonable care to warn such trespassers.

Landowners then, must exercise "reasonable care" in making the land available for public recreational use in order to enjoy liability protection. Such protection also applies to lands leased to the State or any political subdivision for a recreational purpose. The DNR's long-term lease agreement with the City of Gilbert stipulates that the DNR will accept **full responsibility** for accidents or injuries resulting from State-sponsored activities that occur on leased city property.

Risk Management Process

Risk management is simply a matter of: **1)** Using good common sense, **2)** Adhering to accepted professional standards, **3)** Forewarning visitors of potential hazards, and, **4)** Taking prompt, prudent action to correct hazardous conditions. Risk managers begin by identifying and assessing the types of risk exposure the operator faces (e.g., tort claims, contract liability, property loss or personal injury liability, equipment or product liability, food service, water quality, insect or animal-related claims, fidelity or bonding risk). Risks are then evaluated as to the probability and severity of potential losses. Next, specific risk management methods are identified to avoid, reduce, retain, transfer or insure against identified risks. Monitoring the risk management program and managing claims and losses is the final step.

Risk Management Methods

Risk **"avoidance"** methods include simply closing or limiting public access to areas where known dangers occur, or where accidents have happened in the past.[11] This is especially true if these are remote, high-use areas that pose an "extraordinary" danger to public safety (e.g., mine shafts, cliffs, steep slopes, open water, deep ravines, train tracks). Risk **"reduction"** includes such things as installing railings, fences, barriers and warning signs (bilingual if appropriate) alerting visitors to potential dangers.[12] Maps, brochures, informational kiosks, promotional materials and other literature should also contain clear safety messages. The operator has a "duty" to share his/her knowledge of known dangers with visitors and others who need to know. This includes publishing regular reports on road and trail conditions, alerting visitors to potentially unsafe conditions, construction or repair work, or any temporary road or trail closures. Unsupervised use areas, if any, should be duly noted and personal and parental responsibilities should be clearly assigned. High risk areas should be plainly posted **"USE AT YOUR OWN RISK"**. Participation in accredited safety training and loss prevention programs can also help to reduce an operaotr's liability exposure.

Risks may be **"transferred"** (from the operator back to the user) by obtaining a personal injury "waiver" signed by the user *(Appendix D),* or transferred (from the operator to a third party) by obtaining liability insurance protection. So-called "indemnification" clauses which "hold-harmless" the DNR and its' employees for any bodily injury and/or property losses can be effective in reducing the agency's legal liability. Event sponsors, for example, may be required to demonstrate proof of insurance before obtaining a Special Events Permit from DNR. The required limits for this insurance will vary depending upon the number of anticipated competitors and spectators, the type of event, and the credibility of the promoter. Insurance company representatives should, in turn inspect the facility to determine their own potential risk and liability exposure before writing or issueing policies.

Risks **"retained"** by the DNR are those risks that cannot be avoided, minimized or transferred. The agency must decide what level of risk is reasonable and acceptable given its' mandate to construct and operate the Iron Range OHVRA. Since the DNR self-insures its' liability out of its regular budget, it must plan and budget accordingly to meet

[11] Actions taken after accidents occur to correct dangerous conditions do not, in and of themselves, construe negligence on the part of the operator. Such evidence is generally inadmissible in court.

[12] The DNR must balance the need to inform and protect with policies requiring that remote areas be maintained in a natural state or condition. Minimal signage or physical manipulation may be necessary, in some cases, in order to protect the primitive, challenging character of the area. The agency must exercise discretion in balancing public safety with natural and recreational resource values. Such decisions, and the process used to arrive at them, should be well-documented.

anticipated losses and legal fees. Unacceptable risks should either be avoided or transferred via a commercial insurance general liability policy. Acceptable risks may be retained.

Participation Agreements
Personal liability release or consent forms that "hold-harmless" or "indemnify" the operator are legal contracts between the parties that are intended to limit the operators' legal liability exposure. In Minnesota, the use of these consent forms and/or liability waivers is limited to adults of full legal age. Minors cannot knowingly dismiss their risk. Despite the use of such contracts, risk cannot be eliminated. Such clauses are, however, useful as part of a broader Special Use Permit agreement which limits the operators' (third party) liability resulting from the actions of concessionaires, spectators, competitors, event sponsors, OHV clubs or volunteers. When combined with liability insurance requirements and the proper risk avoidance, reduction and management measures, a hold-harmless agreement can help limit the facility operator's liability in the event of a lawsuit.

Issuance of OHV identification cards and/or Junior Rider Certificates could be considered, possibly in cooperation with the Minnesota Department of Transportation. Point of sale vehicle registration might be another opportunity to ask vehicle owners/operators to formally acknowledge the risks inherent in operating off-highway vehicles by having them sign a modified release form for operation on State property.

Access Fees
There will be no regular fee to access or use the Iron Range OHVRA. Fees may be allowed during organized events. Charging gate fees, however, can effectively increase the operator's liability exposure. Collecting the fee implies a degree of management control that may or may not be attainable in an outdoor recreation setting, especially in a remote, motorized setting. In some cases, fees may even be interpreted to supercede or invalidate State Recreation User Liability Statutes which are intended to protect landowners by limiting liability exposure.

Since fee structures can trigger or elevate liability exposure, it is advisable to limit the scope of user fees and which activities they apply to. For example, from a liability perspective it would be preferable to charge visitors a 'parking fee' rather than charging a fee to 'access' the recreation area. Advertising, promotion and ticketing language becomes critical. Alternatively, unspecified 'permit fees' could be charged on event days by the operator, or fees could be collected by event sponsors to 'participate' (as a spectator or competitor) in organized Special Events - but not simply for entry into the OHV Recreation Area.

Special Events - Managing Contractual Risk
State agencies enter into a wide variety of contracts and service agreements that expose the State of Minnesota to significant third-party claims for bodily injury, loss or property damage. Standard service agreements include those for construction, maintenance or repairs, food or beverage vending, or food service and concessions. The State's liability for loss, injury or damage will ultimately depend upon key provisions in the permit or contract agreement.

At a minimum, contractors must be required to identify who pays third-party claims arising from their work, and which vendors or subcontractors must purchase (a specified amount of) liability insurance. In most cases, the vendor should bear responsibility for both, providing DNR with written evidence of insurance. All contracts should be reviewed by DNR Fiscal Agents and the Attorney General's Office with an eye to managing risks. Risk transfer is the preferred method of minimizing contractual risks (i.e., contractor insurance or indemnification requirements). Risk can also be managed by exercising care in selecting contractors, dealing only with well-known or reputable firms, and by requesting that the State be endorsed onto the contractor's liability insurance policy as an "additional insured". This endorsement provides coverage for the State (from the *contractor's* own insurance company) for liability claims arising from the contractor's work for the State. A Performance Bond is also typically required to ensure that permittees comply with key provisions of their Special Events Permits.

Record Keeping
Prompt, accurate reporting is critical in a legal setting, and it can help alert managers to needed repairs or hazardous areas. It can also help identify communication lapses and/or document problems with established maintenance practices. Careful documentation of property damage and/or personal injury accidents is important because staff and/or witnesses may not be available when the case goes to trial. Physical changes to the accident site may have also

occurred during the interim - perhaps as a result of it. Without good records, photos or other official agency documentation, it is difficult to re-establish the facts in the case or to refute unfounded allegations. Good records go a long way towards helping to refute bogus claims and assure recovery of any state claims.

All records, including daily attendance forms and risk waivers, should be filed by date and kept in a secure location (in an electronic format) for a minimum of two years, or until the Statute of Limitations has expired. All functions involved with planning, designing, maintaining and operating the OHVRA (e.g., policy development, maintenance standards, management guidelines) must also be well-documented. These documents and decisions may enjoy legal protection as 'discretionary functions'. The courts grant considerable deference to the operator's judgement if it can be demonstrated that the agency acted responsibly and with full consideration of potential consequences. Courts are hesitant to substitute their judgement for that of the managing agency, even recognizing that management plans and policy directives still leave room for individual judgement by agency employees.

6. MAINTENANCE MANAGEMENT PLANNING

General Maintenance Objectives

"Maintain the OHVRA facility in a safe, responsible and cost-effective manner that contributes to user satisfaction, while protecting the State's investment in infrastructure and its' commitment to natural resources."

Maintenance Management

Management plans and policies require clear, written implementation guidelines explaining suggested procedures for construction, inspections, maintenance and management activities. If adhered to, these standardized directives can help to control risk and legal liability. Compliance with these directives helps establish that OHVRA personnel exercised "due care and caution" in the performance of their duties. Deviations from said policies and procedures should be a conscious management decision always documented in writing.

Rigorous facility maintenance and inspection is critical. Visitors should be notified of potential problems upon arrival. Temporary signage should alert them to potential hazards or unusual grounds or trail conditions. Inspections should be done on a regular, continuing basis and may be performed by either regular staff or volunteer patrols. Potential hazards can include debris such as fallen limbs or trees, road or trail washouts, or vegetative growth that obscures sight lines or intrudes onto the trail right-of-way. Hazards may also result from regular repair and maintenance activity, or may even be placed intentionally on trails by others (i.e., berms or jumps). It is important to identify and address hazardous conditions immediately and notify visitors of the problem as quickly as possible.

It is essential that regular facility maintenance comply with established design standards. If for any reason regular inspections or maintenance are delayed or deferred, visitors should be informed via a written handout at the front gate when entering the facility. This disclosure helps transfer responsibility to the user for operating carefully and responsibly. Temporary closures should be ordered whenever evidence of unacceptable environmental damage, excessive noise or dust levels, or otherwise unsafe operating conditions is found to exist.

Preventative Maintenance

Trail maintenance schedules should be established up-front to permit orderly workload scheduling and to avoid potentially serious lapses in trail maintenance. Generally speaking, *'Light Maintenance'* is required every three years, *'Medium Maintenance'* every five years, and *'Major Reconstruction or Rehabilitation'* events should be planned every seven years. Obviously, soil and site conditions, and the type and level of use will also influence maintenance scheduling decisions.

Vegetation Management

The general objective is to maintain vegetative cover wherever possible to minimize soil erosion, dust and to buffer noise and visual intrusion. Soils may be amended, mulched, seeded or planted, structurally reinforced or engineered to improve their overall stability, fertility and resilience. A comprehensive vegetation management plan should be prepared by DNR Trails & Waterways detailing planting needs, desired species mixes, timber harvest plans and methods, and wildfire protection requirements. This plan should employ *Best Management Practices* to protect and improve visual resources and surface water quality.

Trail Inventory and Maintenance
All trails should be inventoried and regularly monitored for dangerous conditions, such as erosion, rutting, fallen branches or tree limbs, or exposed roots that could cause an accident. Monitoring can be done both by volunteer patrols (with GPS equipment) and OHVRA staff. Hazardous conditions should be reported immediately to maintenance staff and/or equipment operators for prompt attention. Temporary closures should be considered until problems can be corrected. Where repeated problems occur, measures should be taken to reconstruct or rehabilitate the area thereby correcting the problem. Maintenance personnel should explore various soil stabilization products and specialized construction materials now available to reduce trail maintenance costs and simplify and expedite maintenance operations. Unlike earlier products, many of the new products and materials are environmentally benign or beneficial.

Hillclimb Maintenance
Hill climbs are very difficult to maintain. Soils lacking a high clay or rock content to stabilize erosion can be both expensive and time consuming to retain in-place. The only way to maintain hill climbs that erode or cut badly is to haul new material back to the top of the slope and compact it back into the hill using heavy equipment (e.g., dozer, side-boom sheepsfoot). In some cases, it is advisable to institute a hillclimb rotation program allowing damaged hillsides to fully recover before reuse.

Desilting (or Catch) Basin Maintenance
Desilting basins can fill quickly given the steady pace of erosion and deposition. Desilting basins should, therefore, be regularly checked and cleaned out at least annually. Cleaning is generally best done in late summer or fall when moisture content is at a minimum. Basins are scoured using excavators, loaders or scrapers with the silt material being used to resurface other trails, hillsides or event areas.

Multi-Purpose Event Area Maintenance
The multi-purpose event area will require more preparation and maintenance work than any other feature of the OHVRA. Depending upon the level of activity, this area should be maintained on a daily or weekly basis during summer months. Maintenance or preparation work is typically done using a crawler dozer or loader with rippers to break the surface. Once the surface is loose and roughed into shape it should be disked while adding water. Finally, it should be dragged to seal in the moisture and to remove the disk ruts. Moisturing agents (e.g., calcium chloride) can also be added to maintain moisture (and reduce dust) by pulling moisture from the air.

Sand Drag Event Area Maintenance
Sand drag events will probably occur infrequently at the OHVRA. The track should be oriented such that vehicle exhaust is directed easterly toward the existing ore stockpiles. The track surface should be straight and smooth and contain two distinct lanes for the competition. It is important that both lanes be smooth and of uniform soil consistency. Track maintenance can be performed using a grader, land plane, or a rubber-tired tractor with a landscape scraper or drag. Water should be added during track preparation and competitions to control soil surface consistency and dust. The frequency of track maintenance will depend upon the types of events, the types of competition vehicles, and the desires of the sponsors and competitors.

Interior Roads / Parking and Staging Areas
Interior roads, parking lots and staging areas should be surfaced with aggregate material or otherwise armored to stabilize the roadway and minimize dust. These areas, if left unpaved, will require regular grading to remove ruts and washboard conditions. During high-use days or special events, watering roads with water trucks should also be considered as a means of reducing fugitive dust.

7. FACILITY MONITORING PROGRAM

Facility monitoring will be driven by the need to answer legitimate questions and to respond intelligently to concerns requiring a quantifiable, factual response. Social, economic and environmental variables may be tracked over time, recording measurable changes in baseline conditions. Various assumptions and hypotheses can be tested as critical variables (e.g., soils, vegetation, wildlife) are monitored, providing a system of measurements, supplemented with visitor counts and user data, that help correlate impact data. However, because monitoring can

be costly and time-consuming, it must be carefully focused to ensure relevance and practical utility. Specific questions must be clearly articulated **before** monitoring begins, well before any data is ever collected.

Issues and Objectives
Facility Managers should provide guidance in the selection of monitoring variables and methods. Interested and affected persons should also be consulted via the OHVRA Citizen's Advisory process. It is important that the focus be on root issues and not surrogate or secondary issues. It is also critical to monitor only that which is needed to answer specific research questions (i.e., Do we wish to know **whether** soil movement is occurring or **where** eroded soils are being deposited?). Information should not be collected in hopes that it may someday prove useful. Variables that are most often monitored include air and water quality, soil erosion and sedimentation, vegetative changes, fish and wildlife habitat and/or population effects. Visitor counts and user satisfaction should also be monitored, along with select socio-economic and political variables (e.g., changes in property values and/or property taxes, visitor economic impact, costs to local government, effects on infrastructure and public services).

Erosion Control Monitoring
Regular monitoring is necessary to gauge the effectiveness of erosion control measures and to prevent sedimentation or siltation following grading or trail use. Aerial photos, combined with periodic field inspections, can be used to record changes in areas of particular concern. This program should be initiated soon after the facility is opened for public use, and be repeated every two years thereafter. With unusual circumstances, such as a very wet or snowy season, it may be necessary to repeat the review and analysis at shorter time intervals.

Measurement Criteria
Each period of review and analysis should include the following:

1. Obtain (benchmark) color aerial photographs of the site. Re-photograph public use areas every two years, or as needed. Determine the approximate percentage of OHVRA receiving direct wheel-to-ground impacts.

2. Analyze aerial photographs to identify areas of accelerated erosion and sedimentation. Note changes in vegetative cover type and structure. Establish photopoints thought to be especially vulnerable to OHV use.

3. Photograph and inspect impacted areas. Check other areas considered particularly susceptible to erosion problems (e.g. hill climbs) or containing sensitive natural resources.

4. Examine and photograph all major drainage's at their point of exit from the site to document any erosion, sedimentation or water quality degradation.

5. Supplement monitoring data with visitor counts, user data and public opinion surveys to determine the ratio of off-road riders / total visitors, average length of visit, actual operating time, riding preferences and accident data. Verify this with electronic traffic counter data obtained on main access roads and in staging areas.

Monitoring Roads, Trails and Vegetation
All roads and trails should be inventoried to establish their length, width at various intervals, surface conditions, bridge or culvert locations, and other unique or distinctive attributes. This inventory should be stored digitally and GPS coordinates should be used to accurately plot roads and trails on management maps. Roads and trails should be rated according to their level of difficulty (if appropriate) and the volume of traffic they carry in order to determine overall traffic flow and visitor use patterns. Monitoring should be based upon representative trail sections, which are permanently marked and regularly inspected. Any erosion, compaction or rutting should be noted as well as changes in trail width or depth. Tree and shrub mortality should also be noted to a distance of about 15 feet from the trail center.

Acceptable Levels of Change
Qualified field personnel should develop acceptable levels of resource change or impact. Criteria should be developed to aid field personnel in determining when roads, trails or other public use areas have become unsafe or unfit for public use, or at what point resource impacts must be addressed. Clear written policies should identify specific circumstances or indicators which will aid in making trail closure or rehabilitation decisions.

Rehabilitating and Restoring Impacted Areas
Continuous restoration efforts are required to keep roads, trails and public use areas safe and available for use. Measures listed below should be implemented by an on-site monitoring team:

Phase 1. Restoration / rehabilitation events should include physical improvements ranging from grading to the construction of water bars, drainage culverts, bridges, or siltation basins depending on the magnitude of the impact.

Phase 2. Revegetate impacted areas by hydroseeding and/or planting of indigenous ground covers, shrubs and trees using an approved list of ground cover mixes with appropriate soil binders, fertilizers and mulches.

Phase 3. Develop a specialized maintenance program including irrigation recommendations, suggested fertilization regime, maintenance and inspection procedures, and data reporting and storage protocol.

Data Collection Methods
Monitoring methods shall be determined by the research questions themselves, but may include: subjective counts or narratives, field reports, maintaining a photographic record of visible changes, or conducting systematic, long-term scientific investigations into specific phenomena. It is critical to establish the baseline or benchmark for measuring change over time. It is also important to recognize the episodic or seasonal nature of some variables (e.g., soil erosion due to storms or snowmelt) and to evaluate them accordingly. Because quantitative data can be confusing and misleading at times, trend data is preferable for reporting results over time.

Implementation and Analysis
It is important that monitoring programs be realistic, implementable and funded for the duration of the monitoring period. Data collection should be an integral part of everyday field operations. Trail data should be collected regularly and reported in a useful, understandable format. Timely data analysis is necessary in order to act responsibly on findings, and to identify needed changes and/or improvements. Monitoring can also help define resource capabilities and limits, and identify those areas where unsustainable use is occurring. Visitor satisfaction surveys can aid managers in responding appropriately to visitor needs. Public opinion surveys provide a "social barometer" to track changes in local public sentiment, enabling mangers (and the OHVRA Advisory Committee) to respond intelligently to legitimate public questions regarding off-highway vehicle use and its effects.

Monitoring Plans and Schedules
Specific monitoring plans and schedules should be developed a a regular part of the annual work planning and budgeting cycle. Responsibilities must be clearly assigned and accountability measures specified. Public review of proposed monitoring plans should be provided via the Citizen's Advisory Committee process. Depending upon the type of field data to be collected, volunteers may prove useful. Volunteers can reduce costs, improve frequency and intensity of sampling, and help stretch scarce monitoring resources.

8. STAFF AND EQUIPMENT NEEDS

OHVRA Staffing: Position Descriptions
It should be recognized that the following are generalized position descriptions, and that more detailed (and officially approved) State of Minnesota employment *Position Descriptions* must be prepared prior to filling full and part-time complement positions. It should also be noted that not all of the following positions will necessarily be filled as described here, rather there may be some consolidation of duties, especially where overlapping responsibilities are found to exist. Some positions (e.g., notably clerical or janitorial) may also be filled out of the Tower Area Trails & Waterways Office which will administer this facility. The following is intended to provide only a **general description** of the roles and responsibilities of key staffers in operating the OHVRA as described in this Master Plan document.

1. Facility Manager
Purpose: *The Manager's role is to supervise personnel and facilitate communication between staff and visitors. The Facility Manager bears primary responsibility for* ***all aspects*** *of the day-to-day management and operations of the OHV facility. This includes personnel and physical plant management, fiscal management, resource protection, management*

and monitoring, visitor services, enforcement and public safety, facility development, maintenance and operations. He/She reports to the Tower Area Trails & Waterways Supervisor.

Responsibilities and Authority (Example)

1. Maintain a comprehensive repository of policy and management information, operational guidelines, maintenance plans and monitoring schedules, facility programming and interpretive information.

2. Closely track the status of motorized use issues, neighbor and constituent group relations, staff issues and emerging public policy issues. Respond to new or changing needs. Serve as liaison to and ex-officio member of the OHVRA Local Area Advisory Committee.

3. Ensure the safety of staff and visitors. Handle emergency matters personally and professionally.

4. Approve staff work schedules, facility maintenance and rehabilitation plans, and the purchase of new equipment, supplies and materials. Review and approve land acquisition proposals.

5. Handle community and vendor relations, and approve all merchandising and promotional materials. Coordinate media releases and special events advertising. Negotiate the terms and conditions of all contracts and Special Use Permits. Verify compliance with permit conditions.

2. Admissions/Gate Personnel

Purpose: *Admissions Personnel are to ensure that customers are promptly and cordially greeted and informed of all recreationa area rules, regulations and daily events. Off-highway vehicles will be visually inspected and, in some cases, noise tested. Gate Staff will also provide visitor information materials, obtain signed waivers if necessary and collect any gate fees that may be required.*

Responsibilities and Authority (Example)

1. Direct visitors to staging, event or competition areas.

2. Verify special admission passes, licensing and/or operator credentials. Collect event fees.

3. Distribute informational and promotional flyers, trail condition updates, temporary closure or restriction notices, rules and regulations, and information on any upcoming special events.

4. Maintain control of the primary access gate. Conduct sound checks of incoming off-highway vehicles.

3. Maintenance Personnel

Purpose: *Maintenance Personnel are to conduct or supervise all onsite maintenance and repair activities in order to provide a safe, well-maintained public facility. Boundaries, buffer areas, landscaping, fences and berms must also be maintained in order to control illegal entry and to protect visitor safety.*

Responsibilities and Authority (Example)

1. Supervise the inventory and inspection of all trails and event areas. Develop a Maintenance Management Plan that assigns and schedules all major maintenance and rehabilitation activities on an annual basis.

2. Maintain the interior and exterior of all permanent buildings and temporary structures. Supervise landscape maintenance and planting programs. Supervise all equipment operators and grounds personnel.

3. Negotiate and prepare construction and maintenance bids and coordinate volunteers enlisted to help accomplish maintenance goals and objectives. Monitor the performance of maintenance contractors.

4. Coordinate special events preparations, especially those requiring substantial set-up and/or the use of heavy equipment. Direct sanitation, trash removal and post-event clean-up operations as required.

4. Equipment Operators(s)

Purpose: *Equipment Operators will assist in all facets of facility construction, maintenance, repair and rehabilitation. They must also perform routine maintenance and repair work on all vehicles and equipment.*

Responsibilities and Authority (Example)

1. Construct and maintain access roads, trails, special event areas and drainage structures within the OHVRA boundaries. Regularly maintain desilting (or catch) basins and sediment ponds.

2. Monitor and inspect all heavy equipment work done by outside contractors.

3. Prepare race tracks and event areas to the event sponsor's specifications. Report any potentially hazardous conditions and recommend (or undertake) corrective actions.

4. Develop and implement a regular equipment maintenance, repair and replacement plan for all state-owned vehicles and equipment.

5. Facility Patrol and Security

Purpose: *Patrol and security personnel are to direct and control visitor activity; to control public access to the facility, and to direct traffic and assist during emergency situations.*

Responsibilities and Authority (Example)

1. Ensure compliance with recreation area rules and regulations. Take swift and appropriate action against willful violators. Make visitor presentations upon request.

2. Assist and support injured visitors and emergency first aid personnel. Provide on-site First Responder medical services. Maintain professional certifications and meet continuing education and training requirements.

3. Complete accident reports, including witness statements (when available), photographs and/or sketches of the accident scene highlighting instances of property damage and/or personal injury. Obtain names and addresses of eyewitnesses. Take formal witness statements.

4. Assist with front gate visitor control and OHV inspections. Provide visitor information and directions. Direct traffic flow and parking. Control access into restricted or closed areas.

5. Report broken or damaged fences, gates, signs or other hazardous conditions. Post temporary warning notices pending repairs.

6. Alert customers to closing time and ensure that all persons have vacated the facility each evening by conducting a sweep of trails, day-use areas, staging areas and parking lots.

7. Contact vehicle towing and wrecker services to retrieve stuck, disabled or stranded vehicles.

6. Emergency First Aid Personnel

Purpose: *First Aid Personnel are to render emergency first aid to any injured party requesting such aid, and to those in need of such treatment who are unable to request assistance. Assist enforcement and/or outside medical services in providing emergency medical services and/or transportation.*

Responsibilities and Authority (Example)

1. Render emergency first aid treatment upon request or as deemed necessary, within the limits of professional training, medical skills and professional certifications. Maintain professional certifications and training.

2. Dispense minor first aid supplies as requested or as deemed necessary (e.g., aspirin, bandages).

3. Complete appropriate incident reports, and obtain signatures (releases) from injured parties receiving medical attention. Assist outside medical services in locating and/or evacuating injured parties, and in rendering treatment upon request.

4. Maintain an inventory of first aid and emergency medical treatment supplies. Maintain a quick and reliable communications link with area emergency service response units (e.g., police, fire, search and rescue, medical professionals).

7. Pro-Shop Operator

Purpose: *The Pro-Shop concessionaire handles all onsite retail sales and services; directs the overall operation of the shop; controls inventory and merchandising, and coordinates ordering, shipping and retailing of specialized off-highway vehicle parts, products, accessories and supplies.*

Responsibilities and Authority (Example)

1. Orders merchandise for resale and internal use. Maintains standard inventory control system and accepted accounting practices.

2. Markets and sells to visitors, off-highway vehicle sponsors and facility operators.

3. Recommends new and used products, parts, manufactured goods and services for sale to visitors. The Facility Manager must approve all pro-shop marketing and merchandising.

4. Verifies sales and shipments of merchandise as required by the State of Minnesota and the OHVRA operating policy and guidelines.

Specialized Equipment Needs

The equipment listed below may be the property of the OHVRA, supplied by an outside contractor, or brought in from other recreation areas or other DNR Units on a temporary, as needed, basis.

Motorized Equipment: (Suggested)

- ✓ 4x4 Pick-Up Truck / Emergency Response Unit / Ranger Patrol Vehicle.
- ✓ Crawler dozer with six-way blade and rippers (e.g., Sweco, AccuTrack).
- ✓ Excavator w/pneumatic and hydraulic equipment attachments.
- ✓ Heavy duty 4x4 ATV (or Quad) with pull-behind trailer and attachments.
- ✓ Off-Road Motorcycle with equipment carry mounts.
- ✓ Garbage collection / Utility vehicle.
- ✓ Skip Loader / Backhoe / Wood chipper.
- ✓ Water Truck (i.e., 2,000 gal minimum / all-wheel drive).
- ✓ Road Grader and/or Berm-Buster Tractor w/slope board attachment.
- ✓ Motorized Toter (e.g., Honda Toter).

Misc. Hand Tools, Equipment, Materials and Supplies (Suggested Inventory)

- ✓ Disc and drag, draw bar, groomer and heavy roller.
- ✓ Mobile and stationary hydraulic lifts.
- ✓ Traffic limiters, blockades, gates and portable barriers.
- ✓ Subsurface Stabilizers, Geo-Cloth, Armor Stones, Interlocking Geo-Grid Pavers, etc.
- ✓ Treated structural timbers, logs, planking, dimension lumber, turf support blocks, grass grids, etc.
- ✓ Drainage pipes, culverts, puncheon materials, hardened water bars, retainer bars, check dam materials, etc.

- ✓ Miscellaneous hand and power tools, post-hole digger, chainsaws, fencing tools, automotive repair tools, general shop tools, painting supplies, pneumatic tools & portable compressor, landscape equipment, winch, grinder, rock saw, jack-hammer, demolition hammer, augers, timber anchors, hydra-drill, pole saws, pole loppers, Polaski, McCloud, etc.

C. PROGRAMMING AND INTERPRETIVE ELEMENT

1. VISITOR MIX / VISITOR PROFILE

Iron Range OHV Recreation Area visitors will include a mix of OHV enthusiasts, special events competitors and spectators, organized groups, and participants in training sessions, programs, workshops or club meetings. Research conducted by Genereux Research under contract with DNR in 1992 revealed that OHV operators select their favorite riding areas based upon the scenery, the variety of terrain and trail riding opportunities. Operators look for rally areas, challenge courses, camping, training and vigorous enforcement of OHV rules and regulations. Operators also indicated that the ideal site should provide 2.0 hours of riding with about 50 miles of trail. If possible, it should also link to other trails and unrelated (non-motorized) activities and/or destinations.

The Genereux's calculated the median age for a dirt bike operator in Minnesota to be 27 years of age; median ages for 4x4 operators and ATV riders were 32 and 35 respectively. Operators indicated that the median travel distance (i.e., half travel more, half less) to their favorite riding area was 80-100 miles. About 25 percent traveled 150 miles or more, especially on a long weekend or for vacation travel. This compares favorably with more recent research *(Kimball, 1998)* summarized in Table 7.

National marketing research conducted by the American Motorcyclist Association in cooperation with the Motorcycle Industry Council in 1994 indicates that about half of its 210,251 members are off-highway motorcycle (OHM) or all-terrain vehicle (ATV) enthusiasts. The average enthusiast is 37 years old and owns 1.6 ATVs and/or 2.8 OHMs. Seventy-three percent own a pickup truck and 58% routinely drive more than 50 miles to their most frequented riding area. Fourty-eight percent spend more than $100 on an average outing. Sixty-two percent of respondents belong to an OHV club or organization and 46% had participated in a volunteer project during the past year. Fully 93% are registered voters and 82% participated in the last General Election.

Table 7. Minnesota Trail User Profiles *[Source: Kimball, 1998. Profiles of Nine Trail User Populations]*

CHARACTERISTIC	ATV SUMMARY	4x4 SUMMARY	MOTORCYCLE
Age Profile	Average Age = 32	Median Age = 36	Median Age = 33
Gender	92% Male	90% Male	95% Male
Occupational Profile	Skilled/Technical followed by Prof./Managerial	Skilled/Technical followed by Prof./Managerial	NA
Educational Profile	20% College Grad, 50% Attended College	36% Attended and/or Graduated College	81% H.S. or beyond. 17% College Degree
Income Profile	Average $48,000	Median $46,104	Average $35,000
Household Profile	73% Married, Ave. 2.6 Persons	NA	Ave. 2.6 Persons
Population Size	551,891 Adults (1991) 86,184 Vehicles	613,212 Adults (1991) 122,649 Vehicles	214,624 Adults (1991) 88,108 Vehicles
Weekly Riding Rate	60% - 3+ days/wk	21% - 25+ days/yr	93% - 3+ days/wk
Years Riding	4 Years	NA	5 Years

User Behavior and Motivations

The average respondent in the AMA study reported riding a total of 18 miles per day an average of 65 days per year in this Region of the country, with fully 39% of use taking place during summer. Over 68% of this use occurred on weekends. Other interests and hobbies pursued in conjunction with OHV use, in order of popularity, are sightseeing, fishing, hunting, camping and water sports. Nationwide, there are an estimated 4-5 million off-highway vehicles

currently being used for recreational purposes. Utility or transportation uses comprise about one-fourth of all off-highway vehicle use.

Common motivations for driving/riding an OHV include a personal sense of escape or adventure, challenge, relaxation, physical exercise, pleasure seeking and a desire for social or peer interaction. Attractions that can lure potental visitors include scenic and natural areas, cultural events and attractions, competitive events, or quality educational and training programs. Impediments most often cited to travel or participation include the lack of time or money, a lack of information on where to ride, poor health or a fear for personal safety or security.

2. FACILITY PROGRAMMING & ACTIVITIES

Visitor programs might include:

- Safety workshops, equipment maintenance and repair instruction, OHV demonstrations (both conventional and extreme), special events competitions, club and/or family rides, sanctioned races.
- Tours of former mining areas hosted by DNR and/or Iron Range Resources and Rehabilitation Board staff.
- Self-guiding trails or tours with stations along a posted trail route using audio tapes and/or printed materials.
- Seasonal activities such as spring flower shows, tree or plant sales, bird and wildlife observation, etc. Volunteers and staff could assist in organizing and delivering programs.

3. INTERPRETIVE THEMES, METHODS & MEDIA

Potential interpretive themes could include the following:

1. Description of mining effects on population, settlement patterns and/or the regional economy. Of particular interest is the historical development of the Gilbert, Schley, Pettit and Hobart mines and effects on adjacent communities.
2. Contrast and compare historic mining activity with current processing and reclamation techniques. Discuss public recreational reuse and the reclamation of abandoned mining sites.
3. Messages regarding the importance of staying on designated trails and in designated use areas. Safety messages should be incorporated into all literature distributed at the main gate. Signs and kiosks should reinforce safety-related messages, rules and regulations.
4. Forest management at the Gilbert site including timber stand improvements, demonstration areas, white pine under-plantings, small clearcut harvest blocks, fuelwood permits, wildlife openings, wildfire control, bough harvest and reclamation plantings and seeding.
5. Interpret wetlands, lakes, vegetation and forested areas. Focus on Botrychium populations and habitat protection.
6. The importance of OHV operator ethics and safety education in furthering natural resource management goals and objectives.

4. VISITOR SERVICES

Identification of Services

Recreationists benefit from knowing where they can obtain support services (medical assistance, telephones, gasoline, food, lodging, restrooms, campgrounds, vehicle repair facilities) just as local businesses benefit from increased

customer traffic. A comprehensive listing of the services available in Gilbert should be displayed on information boards along routes leading to the site. Maps and brochures should also be made available to visitors.

Trail User Orientation
Trail users must understand the trail system design in order to make informed choices regarding potential destinations, travel times, required skill level, the need for support services (e.g., food or gas), and the type of recreational opportunities to expect. This information can be displayed on information boards at on-site parking/staging areas, in the City of Gilbert, and at trail junctions and access roads. Information materials should identify distances between stations, optional trail connections, and list phone numbers to call for more detailed information. Locational and directional signing is also necessary so that trail users can orient themselves and so that emergency personnel can locate distressed vehicles or visitors. Mile markers, maps and signing of all road and trail crossings (and even water crossings) is very helpful in this regard.

Interpretation of Natural and Historical Resources
Natural resources of specific interest include rivers, bluffs, wetlands, tailings basins, forested and riparian areas. Providing information about these resources can add enjoyment to the trail experience. Interpretive signs should be developed in consultation with other DNR divisions and the Minnesota Historical Society to insure accuracy.

DNR staff and volunteers can add a uniquely valuable dimension to the recreation area experience through personal contact. They can greet visiting groups and individuals, provide information, present organized audio-visual shows and give tours. Staff and volunteers can also lead interpretive trail programs with both cultural and natural history interpretations. Live animals could be incorporated into natural history demonstrations.

5. SAFETY TRAINING & ENVIRONMENTAL EDUCATION

Training Curriculum & Practice Riding Areas
Training areas will be located in the (relatively flat) tailings basins to ensure beginner safety. Adjacent hills and slopes can enhance the level of difficulty for the student. A supplemental training area is located adjacent to the clubhouse to permit ready classroom access. Event areas will generally be made available for practice riding. The primary purpose of the training program is to provide, in cooperation with certified instructors, both hands-on and classroom safety training programs for all ages. The goal is to increase public awareness of the importance of safety in enhancing OHV experiences. The OHVRA will provide a safe, well-maintained recreational facility with dedicated indoor/outdoor training and practice riding facilities.

The curriculum focus will be on safety education, driver education, motorcycle and ATV maintenance, trail etiquette and ethics, and a variety of youth-oriented topics and special activities. *RightRider* and *Tread Lightly* principals will be infused into all course offerings. Youth diversion programs and the *Police Activity League* might also provide programs (such as *"Ready To Ride"*) for youthful offenders in addition to or lieu of jail time or community service requirements. Such programs can instill discipline and basic environmental values, while introducing at-risk youth to the sport and diverting them from the juvenile justice system.

Program Development and Delivery
Initially, DNR Enforcement Education & Training Staff will assist in developing training curriculum for this facility, and in training volunteer instructors in the delivery of ATV and OHM safety training coursework. Other certified OHM and ATV instructors will be invited to teach some of the planned course offerings. A Training Coordinator should be retained on (at least) a part-time or seasonal basis to coordinate the training function at the OHVRA. This individual should have an enforcement background and be skilled in OHV use, general rider education, trail ettiquette and ethics, and safety education. This could be either a volunteer or regular staff position.

Environmental Education
The OHVRA has tremendous potential for facilitating both experiential and classroom environmental education in cooperation with area teachers, naturalists and Environmental Learning Centers. Local educators can guide the development of grade-specific curriculum, programs and interpretive materials for use at the OHVRA. DNR staff can assist in sponsoring volunteer-directed programs that serve area schools in conjunction with their regular curriculum or

extra-curricular training programs. It is recommended that coursework be broadened to include topics unrelated to OHV use and that it include participants who do not presently engage in OHV recreation. Materials are readily available through the *American Motorcyclist Association*, the *National Off-Highway Vehicle Conservation Council, United Four-Wheel Drive, Motorcycle Industry Council* and local chapters and affiliates. The *U.S. Forest Service* can also provide off-highway vehicle information, training materials and specialized technical assistance.

6. VOLUNTEER PROGRAMS

Volunteer participation is critical to the long-term success of the OHVRA. Authorizing legislation calls for the implementation of *"adopt-a-recreation area"* measures as set forth under *MS 85.045*. This program encourages individuals, business and civic groups to volunteer to improve and maintain state recreation facilities. Volunteers are an excellent source of labor for trail construction, maintenance, management and monitoring efforts. Properly administered, volunteer programs can lead to improved, mutually-supportive relationships between volunteers and facility managers. OHV clubs may choose to sponsor or "adopt" certain facilities or programs to focus their volunteer efforts. Adjacent landowners can "volunteer" too, by working with DNR staff to monitor and report violations of state law or Recreation Area rules and regulations. Carefully planned, well-managed volunteer efforts, in turn improve the agency's ability to attract and retain qualified volunteers.

Program Coordination and Supervision

The Volunteer Coordinator is the person responsible for planning, developing, coordinating and supervising the volunteer labor force for maximum benefit. The coordinator should act as liaison between agency staff, OHV groups and individual volunteers. He/she should establish clear policies and procedures needed to support a volunteer-managed organization. He/she should participate in negotiating cooperative agreements, cost-share formulae and volunteer assignments. The coordinator, if not a DNR employee, must work closely with DNR staff to identify, prioritize, assign, schedule and coordinate volunteer efforts. The coordinator also serves as recruiter, trainer, supplies and equipment person, and spokesperson/advocate for "adopt-a-trail" and other volunteer programs. In addition, the coordinator must assume the lead in creating a meaningful volunteer recognition program. He/she should consult OHV clubs in designing an effective program of rewards and recognition.

Volunteer agreements may obligate DNR to provide necessary tools, training or assistance, depending upon the qualifications of the volunteers and the nature of the work. Pertinent agency work rules and bargaining unit requirements must be honored as regards the use of volunteer labor. Public cost-share and grant-in-aid dollars may also be available to leverage volunteer support. These agreements calculate a value for the time, labor, materials, equipment and dollars donated by organized volunteer groups. Agency funds are then made available on a matching basis (not necessarily 1:1) to reimburse volunteers for a portion of their out-of-pocket expenses. Volunteers should not routinely, however, expect reimbursement for incidental expenses. And, in all cases, improvements completed under volunteer contracts or agreements remain the property and responsibility of the DNR.

Selecting, Training and Supervising Volunteers

Under the State Tort Claims Act, state agencies can be held liable for the actions of volunteers. The courts view volunteers as employees acting on behalf of the state, paid or unpaid, making it possible for injured persons to sue the state for the torts of its employees.[13] Preparing volunteers for their jobs becomes critical. Job descriptions and training for volunteers also become important, as do written policies and procedures for hiring and firing volunteers, just as with paid staff. Under state law, terminated volunteers may have legal remedies available to them. Legal counsel should always review all proposed policies and draft volunteer contracts.

Organizations have a legal "duty of care" to properly select, train and supervise paid staff and volunteers. Before the DNR, or the volunteer's affiliated club or organization, can be held legally responsible for volunteer conduct, it must be determined that they do indeed owe a duty of care to the injured party. If there is no "duty", there is no liability. In Minnesota, injured parties can sue organizations for an employee's intentional actions, even if the actions are ouside the scope of the employees regular duties, **if it can be shown that the organization was negligent in recruiting, hiring, retaining, supervising or training the employee.** Proper training and close supervision can minimize this risk and

[13] For the state to be held liable, employeesor volunteers must be acting within the scope of their duties.

raise the legal standard beyond "ordinary negligence" in order for injured parties (volunteers or third parties) to recover damages for injuries sustained.

Volunteer Responsibilities
Activities most commonly undertaken by volunteers include the following:

1. ***Customer Service*** - Serving as hosts or greeters (main gate), distributing event information and trail etiquette brochures, answering questions, assisting with incoming traffic flow and vehicle testing. Conduct on-site visitor satisfaction surveys.
2. ***Facility Monitoring*** - Regularly monitor road and trail conditions, air and water quality, vegetation, noise levels, conduct trail inventories and monitor user compliance with facility rules and regulations.
3. ***Trail System Improvements*** - Assist with specific maintenance and rehabilitation projects, such as trail repair and replanting, installing or replacing signs or culverts, fixing fences, and resurfacing single-track trails.
4. ***Training & Advocacy*** - Assist in planning, designing and delivering training programs, interpretive materials and curriculum aids, and help recruit additional volunteers and/or sponsors. Help cultivate an improved public image of off-roaders through a focused community information campaign.

Examples of volunteer projects include developing rest areas, interpretive projects, cleaning-up litter or debris. Special projects such as the development of non-motorized hiking trails, scenic overlooks, interpretive materials or facilities, or carrying out restoration or planting programs are also important. In so doing, OHV groups can sponsor safety or equipment demonstrations, repair workshops, or training seminars for their members. Trail inventory and mapping projects, using hand-held Global Positioning System units, are an area where volunteer labor can be especially helpful.

It is important that volunteer labor be used efficiently and effectively. Volunteers are a valuable resource and their time and talents must not be squandered. Projects should be selected that show lasting, tangible results. Agency staff should be prepared to put volunteers to work immediately upon their arrival. All tools, equipment and supplies should be pre-positioned at the job site. Volunteers with particular skills or abilities should be given the opportunity to demonstrate their talents as appropriate, and adequate supervision should be provided throughout the project. Although volunteers must follow pertinent agency standards and guidelines, some flexibility may also be needed in applying these standards in order to accommodate (and show respect for) volunteers who are donating their skills to benefit the OHVRA.

A potentially large population of interested groups may be interested in participating in the day-to-day functioning of the OHVRA. Besides OHV group members, others including retirees, at-risk youth, schools and educators, neighboring landowners, and local business and civic groups may also wish to volunteer. Involvement can be both personally and professionally enriching. And, direct participation builds a deeper sense of community ownership which is vital to the long-term success of this state-run recreation facility.

Volunteer Rewards and Recognition
Recognition of volunteer efforts is a long-term investment in assuring continued success. Recognition costs are legitimate and necessary expenses and must be budgeted for. Recognition can be **philanthropic** taking the form of donations given in a person's name (e.g., pictures, books, audio-visual equipment, furniture, trees or plantings); **developmental** providing an opportunity for personal growth of the volunteer (e.g., seminars, workshops, increased responsibility or authority); **social** events can be used to celebrate accomplishments (e.g., formal banquet or informal potluck, a group day-trip or activity); **personal acknowledgement** provides tangible gifts or symbols signifying the volunteers' hard work (e.g., pins, patches, tie tacks, t-shirts or sweaters, a uniform or blazer, books, trophies or personal gifts tailored to the individual volunteer); **community awareness** draws public attention to volunteer work and accomplishments (e.g., radio, TV or print media articles or promotions featuring volunteers and their organizations); **formal recognition** events, held once or twice annually, are another means of providing high-profile public recognition (e.g., awards banquet with prominent guest speaker). *(MN Office of Volunteer Services, 1984)*

Continuous Recognition
Continuous recognition means providing a fun, friendly work environment with daily acknowledgements that affirm the importance of the volunteer (e.g., coffee breaks, lunches, reimbursement for out-of-pocket expenses, special parking arrangements, informal fellowship). Volunteers may be rewarded with increasing levels of responsibility and authority,

with high-profile or highly desirable assignments, or with important leadership opportunities. It is important to tailor and personalize recognition to the individual. OHV clubs should be consulted in designing aspects of the rewards/recognition program. Publicizing volunteer work not only provides well-deserved recognition, it offers a strong incentive for others to become involved and to volunteer their own time and talents.

Paid staff should also be recognized for their hard work and dedication. This will help keep relationships friendly, doors open and attitudes cooperative -- all of which contributes to volunteer retention and achievement of the agency's goals. Volunteers and staff who receive positive reinforcement and recognition will strive to do their best, and their energy and enthusiasm will prove contagious.

CHAPTER V. PROJECT EFFECTS (Selected Alternative Only)

A. SOCIAL, ECONOMIC AND COMMUNITY EFFECTS

Local Public Concern
The OHVRA is located entirely within the city limits of Gilbert, Minnesota. "City residents" live in urbanized downtown Gilbert in residential developments south and east of the OHVRA site. Area residents have voiced concerns regarding anticipated noise, dust, trespass, decreased property values, air and water quality degradation, loss of wildlife habitat and open space, and the loss of rural character and privacy. Critics question the manner in which the OHVRA was created, which they characterize as "undemocratic", and they doubt that the 1,200 acre site is large enough or appropriately suited for this proposed land use.

1. LAND-USE COMPATIBILITY

Current Land Uses
Current uses of the site include hunting, fishing, hiking, wildlife observation, and off-highway vehicle use by (mostly) local residents. Timber harvest and active gravel mining leases occur in Section 36 and portions of Section 25. Some minnow trapping and the harvest of evergreen boughs also occurs in Section 36, the DNR-administered School Trust Fund section. According to area residents and City officials trespass, vandalism, loud parties and illegal dumping have become increasingly problematic in recent years on the proposed OHVRA site. The illegal discharge of firearms (within City limits) and indiscriminate OHV use also presents a growing public safety hazard.

Adjacent land use classifications are shown in *Figure 6*. Gilbert Planning and Zoning officials intend to re-zone portions of the 1,200 acre site to permit public recreational use. Adjacent properties and residences are shown in *Figure 1*. Local public opinion regarding this proposed land use change is mixed. Attitude surveys show that while many Gilbert Area residents regularly use the site for recreation, including ATV and snowmobile use, skepticism remains regarding opening the site to broader public use. Some area residents fear losing traditional hunting and OHV trail use privileges, as well as local connections to regional recreational trails and trail systems.

Compliance With Local Planning & Zoning Provisions
This project complies with all provisions of the Gilbert City Ordinance (effective date 10/10/82), including its' land-use and shoreland zoning provisions. Portions of the OHVRA property will need to be re-zoned in order to ensure consistency and adherence to the code. A general public hearing and City Council approval is required in order to amend the City Zoning Ordinance and effect this proposed change. This project also complies with provisions of the St. Louis County Ordinance (effective date 02/16/93). The DNR is committed to monitoring land-use changes in the vicinity of the OHVRA and responding appropriately to any emerging concerns. The DNR is also committed to meeting all applicable standards, including those related to noise, dust, traffic and air quality.

Proposed Housing Development
The City of Gilbert's long-term economic development plan envisions private development of up to 400 mid-level to expensive homes north and south of the Sherwood Forest Campground along Lake Ore-be-gone. At an estimated $700 annually in new property taxes for each dwelling, such a development could potentially generate up to $280,000 in tax revenue alone for the city and county. This development, critics argue, may be jeopardized by the presence of the OHVRA adjacent to Lake Ore-be-gone.

The DNR does not believe that noise and dust emanating from the OHVRA will pose a significant threat to this proposed residential development. No motorized use is proposed for that portion of the OHVRA northwest of the DM&IR railroad tracks bordering Lake Ore-be-gone. Motorized activity will be set back a minimum of 1/2 mile from the lakeshore. Sound berms and activity restrictions atop the stockpiles will further reduce off-site noise and dust effects, even during worst-case climatic events that favor propagation. The DNR will monitor land-use changes in the vicinity of the OHVRA and respond appropriately to emerging concerns. The OHVRA Advisory Committee provides a standing public forum for discussing land-use changes and for recommending changes to OHVRA management and operations.

Moreover, it is unclear whether this housing development will be built. At present, no design or development plans exist. Moreover, the topography is generally unsuited to platting the area. Given the City of Gilbert's desire to complete the Dakota Avenue extension, and to prepare this site for possible future home development, the city recently entered into a land-exchange agreement with Mesabi Bituminous. This agreement moves the company's gravel mining operations from Section 25 just north of the proposed OHVRA, to the west, adjacent to Lake Ore-be-gone. Gravel mining will flatten the steep topography and prepare this area for the road extension and future home development. It will also allow for use of the current Mesabi Bituminous haul road off of Highway 135 in Section 25 on an interim basis to access the OHVRA until the Dakota Avenue extension is completed.

Surface Use Rights and Stockpile Ownership

Although the DNR has secured surface use rights, land and minerals ownership is complicated by a 1955 co-mingling agreement guaranteeing continued access to owners of minerals removed from the Gilbert, Hobart, Pettit and Schley mines and stockpiled on the Gilbert property. An estimated 16 million tons of iron-bearing rock (35-52% iron) and 3 million tons of tailings remain from mining operations that ceased in the 1980's. The City of Gilbert owns about 6 million tons of this stockpiled ore. Remaining mineral interests are managed by Gardner Management Services (Schley), Eveleth Fee Office (Hobart) and by the DDR Land Trust c/o Norwest Bank (Pettit). There may be other as yet unidentified owners and unprobated fractional interests.

Under Minnesota law, ore stockpiles are sometimes deemed 'personal property', hence stockpile ownership does not always transfer with changes in surface ownership. This uncertainty is compounded by questions of abandonment and/or tax-forfeiture. Although development of the OHVRA will not involve moving or mixing of stockpiles, the DNR would like to consolidate all real and personal property interests within the statutory boundaries of the proposed OHVRA prior to its construction or operation.

The DNR has contacted all stockpile owners of record and asked that they consider donating any property interests that they maintain on the OHVRA site to the surface landowner (City of Gilbert or St. Louis County), in order to resolve liability concerns that may arise from future public use. Alternatively, the DNR has offered to explore the possible sale, exchange or transfer of private property interests to the State. Discussions continue with ownership groups to in order to resolve this situation. Any final agreement must recognize short and long-term costs to the parties involved, the potential for project implementation delays or modification, and possible precedent that may be set for future public land and minerals dealings on Minnesota's Iron Range.

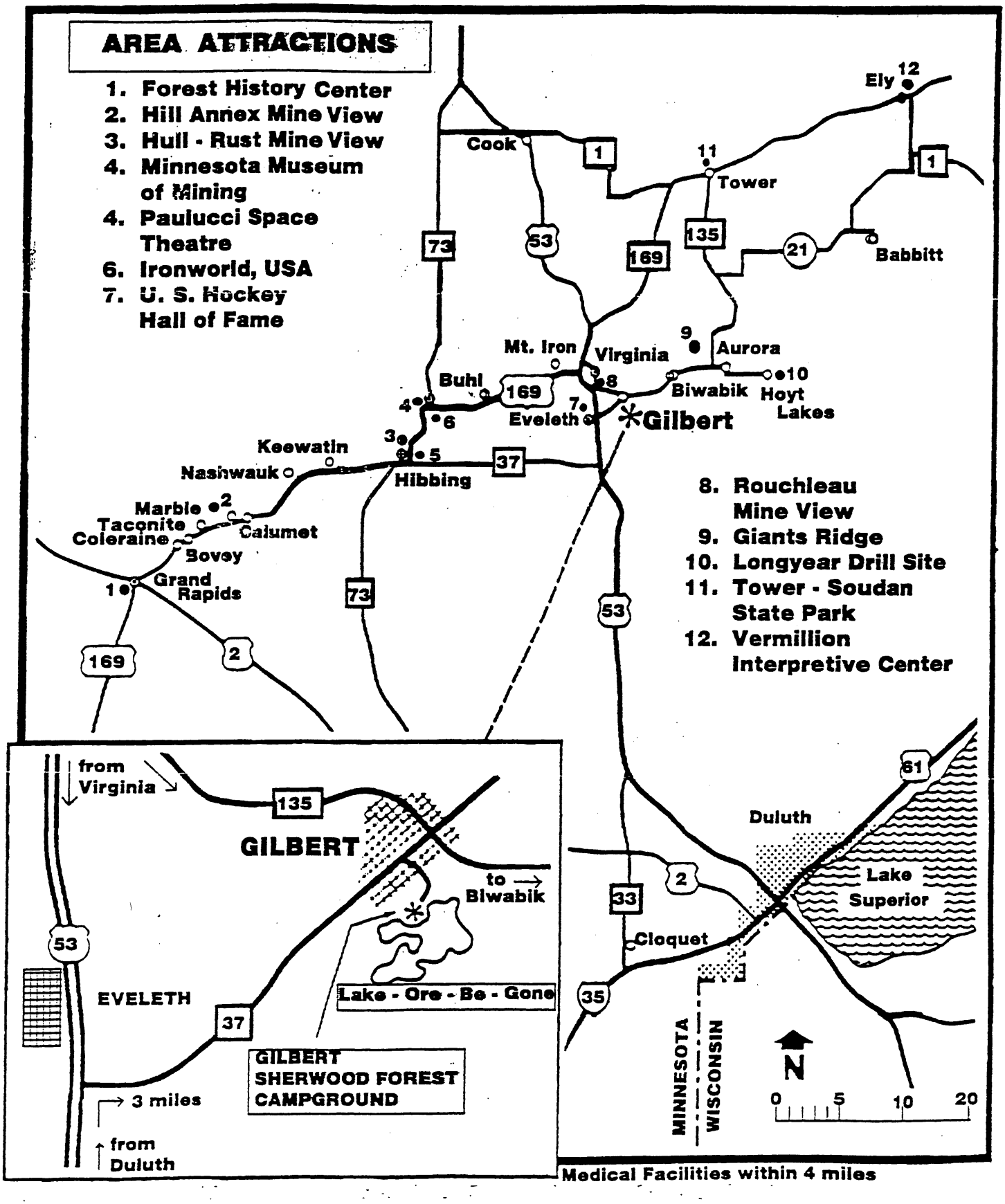
The DNR intends to move forward with this project asserting its legitimate surface use and land ownership rights. Since this project does not involve the removal or mixing of stockpiles or tailings, DNR and stockpile owners may simply co-exist as 'co-tenants' under the law. At some point, the DNR could obtain a legal easement from owners to permit use the stockpiles and tailings basins. This easement agreement could include guarantees of non-disturbance for mineral owners and provide some liability protection under the State's Recreational Land-Use Statutes *[MS Chapt. 604A.20-604A.27]*. Continued access to private stockpile and mineral interests could also be assured. The development and operation of the OHVRA is not expected to significantly affect the stockpile owner's interests.

2. RECREATIONAL OPPORTUNITY

Area Attractions

The Iron Range OHVRA is located proximate to a number of notable tourist attractions including Ironworld (Chisholm), the U.S. Hockey Hall of Fame (Eveleth), Hill Annex, McCarthy Beach and Tower-Soudan State Parks, Hull-Rust Mineview (Hibbing), Mineview In The Sky (Virginia), Giant's Ridge (Biwabik) and the Minnesota Museum of Mining (Buhl) *[Figure 18]*. The region also features a mix of campgrounds, destination golf and ski resorts, trophy fishing lakes, museums, National Register Sites and cultural celebrations. Snowmobile trails criss-cross the area in winter (e.g., Taconite and Arrowhead State Trails, Laurentian Trail, Aurora-Biwabik Trail, East Range Trail) and spur trails link snowmobilers to communities throughout the region. The nearby Superior National Forest provides year-round recreational opportunities for area residents and their visitors. The St. Louis and Itasca County Land Departments also provide dispersed public wildland recreation opportunities on substantial

Figure 18. Gilbert Area Tourist Attractions, IRRRB, 1996.



acreages of tax-forfeited and fee lands that they administer. The OHVRA will complement existing outdoor recreational opportunities by providing a designated OHV riding and special events area.

Planned Link to the Mesabi Trail
Future links to the nearby Mesabi Trail, along Highway 135 in Gilbert, will enable OHVRA visitors to access and use this 132-mile multi-use (non-motorized) recreational trail stretching between Grand Rapids and Ely *(Fig. 19)*. The four-mile section of trail between Gilbert and Biwabik is planned for 1999[1]. Along the trail, which links more than 20 communities, there are learning and interpretive centers where trail users can stop to learn about the forest or area geology. It also winds by several properties listed on the National Register of Historic Places. Connections to other trails and trail systems will permit long-distance destination travel.

Dakota Avenue Extension/Campground OHV Trail
The planned extension of Dakota Avenue to access the OHVRA will be undertaken by the City of Gilbert with assistance from the DNR. Construction and long-term maintenance of the approximately one-mile long city street will be a city responsibility, as will any improvements undertaken to encourage commercial or residential development of this area. The road project will be constructed under the supervision of the Gilbert City Engineer. An OHV trail connecting the Sherwood Forest Campground with the OHVRA will also be constructed by the City of Gilbert with financial assistance from the DNR. This trail will permit campers to travel between the campground and the OHVRA without trailering their OHVs. Campground accommodations are critical to the success of the OHV Recreation Area.

Development of Non-Motorized Trails
The DNR will consider future development of hiking, biking and possibly equestrian trails, principally in T58N R17W, Section 36, subject to the same rigorous environmental constraints and activity setbacks applied to initial development plans. These trails would enable visitors to enjoy natural features located on the 1,200 acre site, and provide a non-motorized alternative for those too young to operate OHVs. These trails would also provide an interpretive opportunity and outdoor classroom for nature study and resource management demonstrations. No project dollars may be used in the development of such trails. Alternative funding sources will be needed to construct and maintain non-motorized trails at the OHVRA.

3. ECONOMIC & COMMUNITY EFFECTS

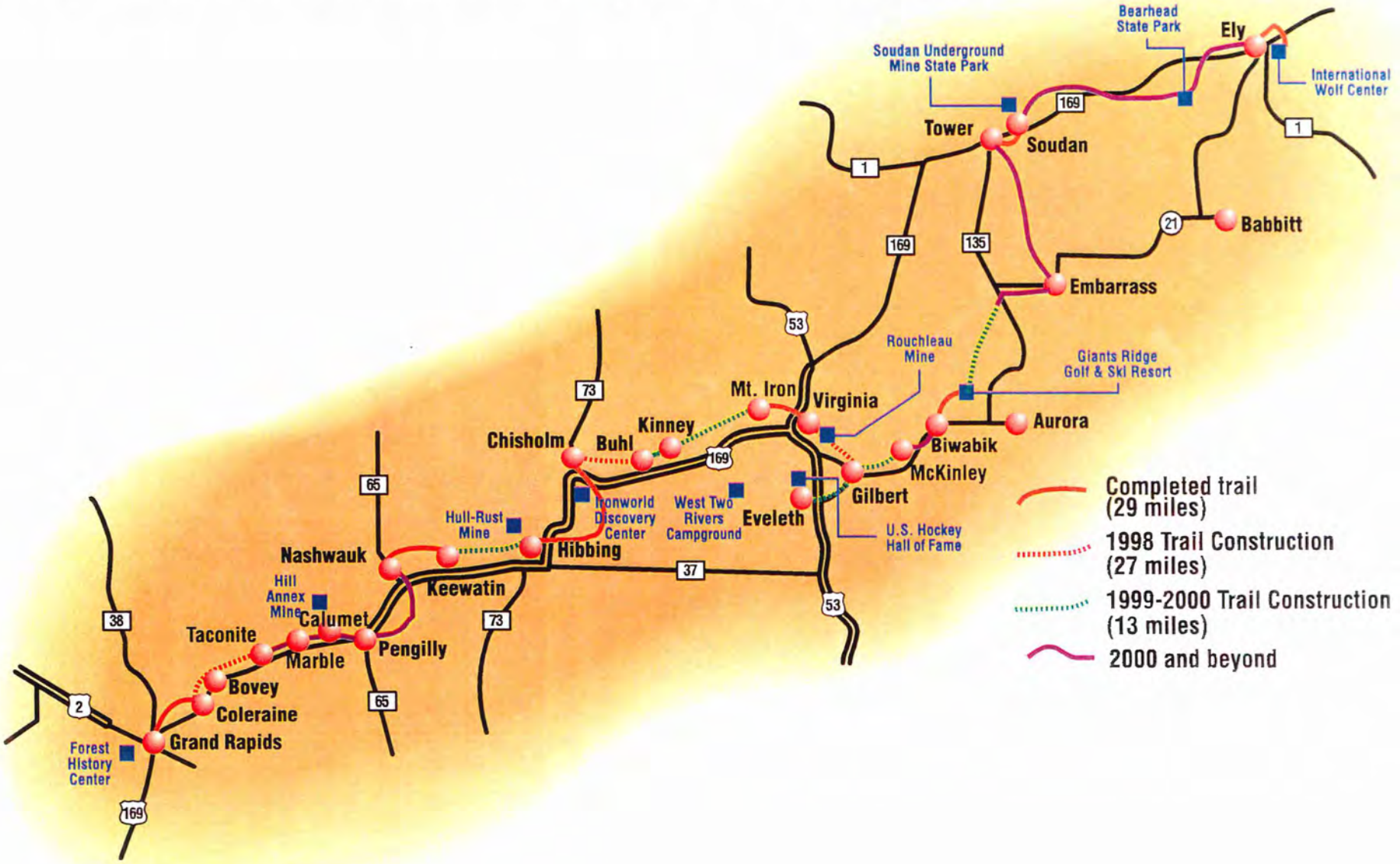
Construction and operation of the proposed OHVRA will significantly impact the Quad Cities Area economy. The following section describes these effects, both positive and negative, including spending related to facility construction, operations, income and employment, taxes and purchasing, added tourism and travel, infrastructure costs and anticipated local governmental expenditures. Direct, indirect and induced economic effects resulting from new business activity are 'multiplied' throughout the regional economy to produce substantial long-term benefits. A discussion of specific project-related effects follows.

Construction Effects
The DNR, Bureau of Engineering will prepare engineering design plans, but private contractors will perform all on-site construction. The DNR anticipates using Minnesota contractors and, depending upon the competitiveness of their bids, local contractors. The DNR will spend in excess of $2 million constructing the Iron Range OHVRA, including supplies, materials and capital equipment costs[2] *[Tables 11 & 13]*. Final construction design plans and blueprints are not yet available.

Income, Employment and Purchasing
Local employment income and DNR spending (approx. $150,00/yr) will also impact the local economy. Most equipment, supplies and materials necessary for day-to-day operation of the OHVRA facility will be purchased locally. Major regional equipment vendors are located in Virginia, Hibbing, Grand Rapids and Duluth. Retail food,

[1] This four-mile segment will be considered for motorized (summer) use.
[2] Preliminary construction estimates were developed by Trails & Waterways Regional and Area Staff in consultation with project design consultants. Actual costs may be more or less than estimated.

Figure 19. Mesabi Trail, *St Louis County Rail/Trail Authority, 1998.*



beverage and gasoline service stations located in Gilbert will meet the majority of the demand for consumer goods. Local vendors will also be in an excellent position to sponsor and/or provide canteen services during planned special events.

The DNR plans to employ two full-time and five part-time or seasonal personnel to operate the OHVRA facility. Full and part-time DNR employees and their families will likely reside proximate to the OHVRA. Area enforcement efforts will also be boosted (by both Gilbert PD and DNR) and temporary help will be sought to stage special events. This additional full and part-time employment will directly benefit the Gilbert Area economy.

Visitation Estimates & Economic Impact Projections

The projected demand for recreational use of this facility is estimated at between 10,000 and 20,000 user-days per year, with an economic impact of between $200,000 and $400,000 per year to the local economy. Economic estimates are based on a per capita local expenditure of about $20 per day. This economic effect is expected to occur gradually; it may require 3-5 years to publicize and attain full-use of the site. This impact analysis was conducted using attendance and travel data provided by the St. Joe State Park in Missouri and applying it to the Gilbert site. The results are thought to provide a good indicator of visitation and related economic impact[3].

No-Build Effects

If the proposed OHVRA were **not** constructed, projected tourism and economic benefits will be foregone. Growth in personal income, employment and spending levels attributable to the OHVRA would not occur. Construction spending might, however, be re-directed to other potential sites on the range. Private sector investment or expansion plans, contingent upon the Gilbert development, would be scaled back or dropped. The planned Dakota Avenue extension would assume a lower priority, as would campground expansion plans and any other project-related developments. Although short-term land-use would remain unchanged, debate would resume in the City of Gilbert over longer-term land-use options. This debate would be punctuated by the presence of the state-protected *Botrychium* species known to inhabit the site, and the need to protect this rare plant in the face of future reuse or development of the site. Estimates of this overall annual loss are impossible to calculate without added data on attendance, local spending, and private sector investment plans.

4. INFRASTRUCTURE & LOCAL PUBLIC SERVICES

Public Costs

At the June 6, 1997 meeting of the OHVRA Advisory Committee, members resolved that Gilbert taxpayers should **not** bear responsibility for costs incurred in extending electric, water or sewer service to the OHVRA. Capital development and operating costs will be borne by the DNR[4], as will costs for utilities, enforcement and emergency medical assistance. Serious accidents will be attended by the Virginia Fire Department on a fee basis, and emergency search and rescue operations will be carried out with the assistance of the Virginia Fire Department and the St. Louis County Emergency Search & Rescue Team. The DNR will subsidize enforcement efforts in the City of Gilbert, as necessary to compensate for any increased enforcement workload attributable to OHVRA operations. Special event sponsors will be required to provide for enforcement and public safety needs commensurate with anticipated attendance at competitive events.

The chief direct costs to the City of Gilbert will result from the construction and maintenance of the primary access road and OHV trail from town to the front gates. Preliminary cost estimates for the road and trail combined are about $480,000. No funding source for construction has yet been identified[5]. Maintenance of the proposed Dakota

[3] Application of this data to the Gilbert Site has several important caveats: 1) There other OHV trails and facilities in closer proximity to the Twin Cities than is Gilbert - this was not true in Missouri; 2) The Gilbert OHV Area will someday connect to other OHV trails and facilities - Missouri State Parks have no such connections; 3) There are twice as many OHVs per capita in Minnesota as in Missouri; 4) St. Joe State Park is larger than the Gilbert Site; and 5) No allowance was made for Special Events in estimated attendance figures. In order to project demand, these factors were ignored since they tend to cancel each other out.

[4] The OHVRA is a user-funded facility deriving its funding from dedicated OHV license and registration fees, and a percentage of unrefunded gas tax dollars attributable to off-road travel. OHMs accrue .05%, ORVs accrue .16% and ATVs accrue .15% of unrefunded gas taxes annually. Combined these accounts generate in excess of $4.5 million annually for OHV programs.

[5] The Gilbert City Council has resolved that construction costs should not be paid for by Gilbert taxpayers. The DNR will provide financial assistance to construct the OHV trail connecting the campground with the OHVRA.

Avenue extension may cost up to $5,000 per year. A maintenance agreement for the OHV Trail will need to be negotiated to permit DNR to maintain the trail between the OHVRA and the Sherwood Forest Campground.

Property Values & Taxes

Effects on property values adjacent to the OHV Area are less certain and more difficult to predict. Property values adjacent to motorized trails in Minnesota and adjacent to OHV areas in Missouri show little change following the onset of this activity. Effects can best be characterized as "mixed', with some properties increasing in value, while others remain stable or decline slightly. No marked changes have been observed. Construction and operation of this facility is not expected to result in higher taxes or reduced property values for Gilbert Area residents. It is suggested that public costs and trends in property values be tracked over time to generate current, reliable (Minnesota) case study data demonstrating actual effects.

5. PUBLIC SAFETY & ENFORCEMENT

Since 1987, there have been over 70 fatal accidents involving ATV's in Minnesota. The state averages about 170 personal-injury accident reports annually, not including unreported or property damage only accidents. Minnesota ranks tenth in ATV deaths nationally[6]. Most accidents occur on either private property or road right-of-ways. Most victims are male, and most are beween the ages of 10 and 21. Most accidents happen on weekends and few of the victims have had any safety training or vehicle instruction. Mandatory accident reporting requirements show that in the majority of fatals, the machine struck a fixed object - usually a tree. Roll-overs and collisions with automobiles are the second ranking causes of ATV-related injury and death, repectively. The lack of designated OHV trails and the unique handling characteristics of off-highway vehicles have contributed to this toll. Excessive speed and carrying passengers on ATV's (not designed for passengers) are also cited as causes of accident and injury.

An adequate enforcement presence, both within and around the OHVRA, will effectively deter illegal or unauthorized activity. The added workload brought about by the proposed recreation area will be split by DNR Enforcement and the Gilbert Police Department. Regular patrols, by DNR Enforcement Officers and by volunteers[7] will minimize problems within the facility. The DNR will cost-share added enforcement needs within the City of Gilbert and outside the statutory boundaries of the facility. The OHVRA does not pose an increased risk for wildfire ignitions, and the risk of wildfire is minimal. Public safety issues will be emphasized in all training programs, information materials, in practice riding areas, and during vehicle and equipment inspections.

Increased enforcement staffing recommendations should be seen as minimums - not maximums. Constant monitoring and periodic re-evaluation, in collaboration with local authorities, will be necessary to determine actual enforcement needs in and around the OHVRA. Specialized equipment and/or training may also be required for area enforcement staff. Project dollars should be made available for this purpose if necessary.

Special Safety Considerations

The northern portion of the OHVRA lies within the 2000 foot Personnel Safety Blasting Zone which surrounds Inland Steel's nearby Laurentian Taconite Mine. According to the mine's current production schedule, blasting is conducted for about 1-2 hours per week. This 'blast zone' is routinely evacuated and checked by air prior to blasting to ensure that nobody remains within this perimeter. Affected portions of the OHVRA, and Highway 135, will be vacated as necessary to protect public safety during blasting periods. Statutes authorizing the OHVRA do not preclude mining or mining-related land uses or activities within the OHVRA.

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[6] According to the U.S. Consumer Product Safety Commission, nearly 3,000 ATV riders died nationwide between 1982 and 1996. More than one-third were under age 16.

[7] Citizen patrols provide a welcome presence, and can be very helpful in alerting enforcement personnel to illegal activity or in summoning emergency services. However, citizen volunteers are not authorized to stop, detain or arrest suspected violators, or to provide emergency medical assistance. By so doing, the volunteers would present an unacceptable legal liability both for themselves and for the State of Minnesota, the administrator of the facility.

6. TRANSPORTATION EFFECTS

OHVRA-Related Traffic Effects
Visitation is estimated at 10-20,000 persons annually, with greater use occurring during summer (May - October) and on weekends. This estimate was obtained by analyzing visitation data from St Joe State Park and Finger Lakes State Park in Missouri. Both parks feature OHV use areas, and both are approximately the same size and configuration as the proposed Gilbert Site. Travel distances to major population centers were considered, along with total numbers of registered off-highway vehicles within proximity to each park.

Traffic generated by the proposed facility in Gilbert is not expected to tax existing transportation infrastructure in the Gilbert Area, except possibly during Special Events. Additional enforcement personnel will be requested during such events to minimize public safety and traffic problems that may arise as a result. Approximately 4-6 special events are expected to be held at the OHVRA each summer, or about one per month. Implementation of this project will not significantly affect pedestrian, rail or bicycle traffic in the City of Gilbert.

7. HISTORIC AND CULTURAL RESOURCES

Initial archeological and cultural investigations were conducted by Trails & Waterways' Cultural Resource Program Staff during October 1996. Subsequent site visits supplemented focused archival research. The initial review was performed for a broadly defined study area in order to assess the potential for the project area to contain significant cultural resource properties. No currently documented archeological or historical properties or artifacts were found to exist within the project's Area of Potential Effect. A letter of determination from the State Historical Preservation Office (SHPO) regarding this investigation and the negative finding is on file with DNR Trails & Waterways.

8. UNIQUE LOCAL & REGIONAL RESOURCES

The Mesabi Iron Range is an area of Minnesota rich in history. The name "Mesabi", used by early explorers to describe this mining region, was an adaptation of the Chippewa Indian word meaning "giant's range". The area's iron ore fed the nation's steel mills for more than half a century, ushering in an era of American industrial dominance. With the discovery of iron ore, came the influx of immigrants from over 40 countries who settled the land, worked in the mines, and established the colorful traditions and rich ethnic diversity of today's iron range.

Mining: Past, Present and Future
Once as high as 14,000 in 1979, today's mining workforce has shrunk to about 6,000. But for the 6,000 still working the mines, and the thousands more who are employed in affiliated industries, it is a much more stable work environment than it once was. The seven active taconite mines are operating at or near capacity. Ore tonnage is comparable once again to record levels. Direct reduction technologies have revitalized an industry once thought to be boom or bust. At least 100 more years of mining is projected - at increasing production levels. Mining is truly unique to the range, and integral to the culture, the identity and to the communities that comprise Minnesota's Mesabi Iron Range. Interpretation of mining's influence in settling this area will be a major theme at the OHVRA. Statutes authorizing the Iron Range OHVRA **do not preclude mining** or mining-related land uses within the statutory boundaries of the OHVRA.

B. PHYSICAL AND ENVIRONMENTAL EFFECTS

1. VEGETATIVE COVER EFFECTS

Some vegetation and wildlife resources will potentially be impacted either directly or indirectly, as a result of proposed development. Specific impacts and proposed mitigation measures are outlined below.

a. **Intensive Use Areas** are limited to former mineland areas which currently sustain motorized use and industrial activity. Landscaped buffers between the special events area and adjacent riparian lands will protect sensitive resources and prevent unauthorized access into sensitive areas. Adjacent riparian areas should be

closely monitored, especiall during special events, to assess the effectiveness of buffers and fencing in restricting access.

b. **Internal Access Roads / Backbone Trails** will carry relatively large numbers of people into the facility. Protecting sensitive areas adjacent to access roads will require a combination of physical barriers and signs, plantings and enforcement. Landscaped buffers will be installed to prevent and/or discourage motorized vehicle users and spectators from entering restricted areas. Sizable buffers should also be maintained around especially larger trees in order to reduce the likelihood of root cuts and subsequent tree mortality.

c. **Parking / Staging Areas** are located in tailings basins which are well-suited to this use. Natural vegetation should be retained wherever possible and supplemented with landscaping. Minimize vegetative clearing for equipment storage areas and during parking area and trail construction. Steps must be taken to limit the spread of these open or 'scramble' areas (e.g., installation of signs, fences, barriers).

d. **Trail Areas.** The backbone trail system should be limited to a single primary route following existing roads and trails wherever possible. Secondary trail system development will seek to minimize impacts to vegetation and wildlife habitat. New trails will avoid critical habitat and riparian areas. Unauthorized trail riding can be discouraged by installing physical barriers such as post-and-rail fencing. Site-specific mitigation plans will be developed as part of engineering design planning.

Vegetation Management and Monitoring Program

A Vegetation Management Plan will be prepared by DNR Trails & Waterways. Monitoring of user activity patterns and corresponding changes in vegetative conditions over time is also planned. Monitoring will be conducted by qualified staff or volunteers familiar with native vegetation and wildlife. The field methodology must be well-documented so that surveys can be easily replicated and results compared over time. This methodology might include:

- Monitoring wetland areas for any change in natural wetland character, condition or hydraulic functioning.
- Inventorying tree and shrub stems in scattered control plots to determine percent mortality attributable to OHV use versus other natural physical or biological events.
- Monitoring wildlife population dynamics for both game and non-game species by conducting periodic surveys of certain indicator species.
- Conduct regular exotic plant species inventories as part of planning for exotic species control and eradication.
- Establish photo-points and research plots in areas considered vulnerable to off road riding (e.g. riparian areas, steep hills). Identify and photograph these areas to determine whether control measures are adequate.

Exotic Plant Species Management

A general plant species inventory has been completed for most areas of the 1,200 acre OHVRA *(Shubat, 1997)*. Identified exotics include European buckthorn *(Rhamnus cathartica)*; garlic mustard *(Alliaria officianalis);* leafy spurge *(Euphorbia esula);* spotted knapweed *(Centuria maculosa)*; and koschia *(Koschia scopparia)*. These species are commonly found on minelands in NE Minnesota. The distribution of exotics should be monitored as part of a comprehensive control and eradication program. Special measures should be established for managing exotic plant infestations within non-motorized (buffer) and exclusion zones, such as the 'No Impact Zone' established to protect sensitive *Botrychium* populations. Use of the Vehicle Wash Facility should also be encouraged in order to minimize the potential for the introduction or spread of exotics.

Invasive exotic plants colonize disturbed sites with exposed mineral soils. Tire treads with mud or dust attached can also provide a pathway for seeds of plants to be introduced into new areas. Measures to help limit the potential introduction and spread of exotics include: pre and post-washing of OHVs, vegetative plantings of native competitors, annual inspection of infestations, and mechanical or chemical controls. Invasive exotic plants should be controlled or eradicated, especially when they impact visual or recreational quality. Specific attention should be paid to

the plants listed in Table 8. Plants with an asterisk (*) are especially aggressive species that can out-compete and quickly crowd out native species.

Table 8. Aggressive introduced exotic plant species. DNR Ecological Services, 1997.

*Carduus nutans** (Musk Thistle)
*Centaurea maculosa** (Spotted Knapweed)
*Cirisium arvense** (Canada Thistle)
*Cirisium vulgare** (Bull Thistle)
*Euphorbia escula** (Leafy Spurge)
*Lythrum salarica** (Purple Loosestrife)
*Rhamnus catharica** (Common Buckthorn)
*Robinia pseudoacacia** (Black Locust)
*Sonchus arvenis** (Sow Thistle)
Acer ginnala (Amur Maple)
Acer platanoides (Norway Maple)
Berberis thunbergii (Japanese Barberry)
Bromus inermis (Smooth Brome)
Cannabis sativa (Hemp or Marijuana)
Chrysanthemum leuchanthemum (Ox-eye Daisy)
Cichorium intybus (Chicory)
Convolvulus arvenis (Field Bindweed)
*Coronilla varia** (Crownvetch)
Daucus carota (Queen Anne's Lace)
Elaeagnus angustifolia (Russian Olive)
Elaeagnus umbellata (Autumn Olive)
Glechoma hederacea (Creeping Charlie)
Hieracium aurantiacum (Orange Hawkweed)
Lonicera tatarica (Tartarian Honeysuckle)
*Lotus corniculatus** (Birdsfoot Trevoil)
Melilotus alba (White Sweet Clover)
Melilotus officinalis (Yellow Sweet Clover)
Morus alba (Mulberry)
Phalaris arundinacea (Reed Canary Grass)
Plantago major (Common Plantain)
Poa compressa (Canada bluegrass)
Poa pratensis (Kentucky Bluegrass)
Rose multiflora (Multiflora Rose)
Tanacetum vulgare (Common Tansy)
Taraxacum officinale (Dandelion)
Ulmus pumila (Siberian Elm)
Verbascum thapsus (Common Mullein)
Vinca minor (Common Periwinkle)

Acceptable Levels of Change
A qualified field biologist should develop acceptable levels of resource impact in order to strike a measured balance between user needs and the preservation of natural conditions. Activity areas or trails exhibiting marked deterioration over a period of one year, for example, could be temporarily closed for rehabilitation. In cases where high-value or sensitive resources (e.g. wetlands) have been subjected to unauthorized use, these areas should be secured and posted, and adjacent use suspended or rotated until the impact has been mitigated and unauthorized use has ended.

Rehabilitating and Restoring Impacted Areas
Initial restoration efforts should include physical manipulation ranging from surface grading to emergency hydroseeding or planting. Revegetation should follow with planting of indigenous ground covers, shrubs and trees. A specialized maintenance program and schedule, tailored to the site, should be followed to ensure lasting success.

A comprehensive rehabilitation program should include a detailed scientific survey of plant communities found in and adjacent to high-use activity areas. Vegetative plantings, soil stabilization and/or wildlife habitat improvement efforts might also be undertaken as a part of restoration efforts. Restoration of native woodland or wetland communities along OHV trails can help minimize maintenance costs and deter unauthorized off-trail riding. Only native species should be used to revegetate areas disturbed by erosion, overuse or construction. It is especially important to use native plants in highly-visible landscaped areas adjacent to public parking areas, day-use areas and near administrative support buildings. Timber harvest plans should be limited to that activity necessary to protect the health and productivity of forested areas, as well as the State's investment in roads, trails, tree plantations or other site improvements.

Forest Management
Forest management will likely include clear-cutting, selective cutting, road building, tree planting and timber stand improvement activities. Management activities in Section 36 will remain under the direction of DNR Area Forestry Staff. Other programs related to forest management would include forest insect and disease management, and wildfire protection activities. Water Quality and Visual Quality Best Management Practices (BMP's) will be employed in carrying out forest management activities. Forestry Staff will support and assist Trails & Waterways personnel in managing vegetation on the remainder of the OHVRA site.

Wildfire and Fuels Management
Wildfire can be a threat to natural resources, facilities, and human life and property. However, standard fire suppression and fire exclusion practices can impact valued natural and cultural resources. For these reasons, DNR Forestry and Trails & Waterways staff should prepare a Wildfire Management Plan specific to the OHVRA which will:

- Clearly define channels of authority and responsibility for wildfire suppression and management within or threatening the OHVRA. Establish temporary closure policies and public evacuation plans.

- Establish and communicate procedures for prevention, suppression, and initial attack of wildfires by DNR Forestry and Trails & Waterways personnel.

- Establish a comprehensive wildfire prevention plan, including a prescribed burning program, development of a system of natural and/or artificial firebreaks, and suggested public information and education efforts.

Because some fire control and suppression methods can be more harmful to sensitive resources than fire itself, it is important that special standards and procedures specific to the OHVRA be developed. Maps, overlays, and narratives should be regularly updated to include changes in property ownership, fire history, adjacent land-use changes or new developments.

Undesirable effects of suppression activities can be avoided by using a planned program of modified fire suppression, and by dividing the OHVRA into containment units bordered by existing natural and artificial firebreaks.[8] In the event of a wildfire, suppression activities will be concentrated along the borders of established containment units, thus minimizing resource damage. The program should also identify high-value resources and public safety issues peculiar to the OHVRA. Wildfire contingency planning will greatly reduce the likelihood of damage from suppression activities, while protecting both resources and visitors.

Reducing large fuel accumulations is an important part of fire prevention and management. Prescribed fire can reduce wildfire hazard by removing accumulated dead woody material. Wildlife habitat can also be improved by creating diversity in age structure, providing a source of new forage, and by opening up stands of thick or overgrown trees or shrubs for use by a variety of species. Even regular prescribed burns, however, cannot eliminate the threat of destructive wildfires during periods of high fire danger, especially those resulting from human activity.

2. SCENIC & VISUAL RESOURCE EFFECTS

Visual Resources
The scenic quality of the Gilbert area landscape is a valuable resource, both for OHV visitors and for neighboring properties. Trails, roads, picnic and camping areas can be located to take advantage of this scenery, while minimizing intrusive trails or other developments in visually prominent areas (e.g., hilltops, stockpiles). Obscured areas should be the focus of trail development, along with 'intermediate zones' - or partially obscured bluff areas and slopes not directly exposed to off-site views. When it is necessary for trails to traverse these zones, the alignment should follow the topography and take advantage of existing vegetative cover or shielding topography.

Planning for the OHVRA has sought to minimize visual alterations or disturbance, and to retain basic land forms, since this rugged topography provides the basis for a high-quality OHV experience. Steep slopes will be retained as open space that is partially-fragmented by recreational trails. No structures will be sited on side slopes or bluff lines. Visual modifications will be limited to linear trail corridors. The most obtrusive visual impact would result from hill climb event areas; however these areas will be located on interior slopes in areas less visible from surrounding properties.

Maintaining Visual Quality
Visual alternation of landforms is caused by cutting, filling, grading, or removing vegetation. Wherever possible, such alterations will be avoided. Existing cuts will be restored to a more natural appearance with the appropriate native vegetation. The height of cut and fill slopes should not exceed 10 feet; and final slope grades should be contoured to

[8] Firebreaks should be signed, gated, and fenced if necessary to prevent unauthorized OHV use.

blend with adjacent natural terrain. Landscape plantings and buffer strips should consist of native trees and shrubs that blend with the surrounding landscape. A mix of deciduous and coniferous species will ensure that the buffer remains an effective screen year-round.

- **Building Design.** Architectural building designs should be visually compatible with the surrounding rural setting, using natural materials and earthen as opposed to bright, unnatural colors. Landscaping should also be consistent with the visual and textural character of the area.

- **Special Events Areas** - The visual intrusiveness of the sand/mud drag event area can be reduced by creating a landscaped buffer and by vegetating adjacent parking areas. Visually prominent hill climb areas should be gated or barricaded at the slope base to prevent unauthorized use. Landscape buffers will help screen parking areas and access roads.

- **Trail Areas.** Disruption of side slopes visible from the City of Gilbert will be mitigated by limiting secondary trail development. Grading will be restricted to that required for construction of the primary backbone trail, and one or two dispersed secondary trails. Unauthorized vehicular use of visual buffer areas can be prevented by installing heavy wooden post-and-rail fencing. Barrier fencing should also be placed between designated motorcycle trails and added visual buffers placed near the perimeter of the site.

Visual Quality Monitoring
An ongoing monitoring program should evaluate the effectiveness of measures intended to control unauthorized riding in undeveloped areas and buffer zones. Design plans should attempt to minimize visual alterations, using natural land forms and landscape buffers to mitigate visual impacts. Buffers help maintain a natural character that is visually compatible with the surrounding setting in order to improve continuity and visual quality. Exterior fencing and barriers should be continually evaluated as to their effectiveness in controlling unauthorized use and access.

Measurement Criteria
Review and analysis should include:

1. Visual observations by DNR staff to determine the areal extent of damage from unauthorized vehicle use.

2. Field photography and examination by DNR staff to identify areas of violation by unauthorized riders.

3. Inspection of barrier fencing to identify breaches and/or areas where trespassing has occurred.

Rehabilitating and Restoring Impacted Areas

1. Revegetate impacted areas with plants of native groundcover grasses, trees and shrubs.

2. Use existing vegetation and topography to help screen intrusive facilities.

3. Modify earthwork practices to limit substantial cut or fill slopes. Round edges of cut slopes to make them appear more natural. Obscure cut slopes whenever possible.

Visual Quality Planning
It is suggested that a Visual Quality Management Plan be prepared for the OHVRA in order to protect and improve the aesthetic qualities of this site, and to enhance the recreational trail riding experience for visitors. Equally important is the need to minimize off-site noise effects and screen undesirable views from neighboring properties. Visual management planning should address all facets of facility design, construction, operations and maintenance, and provide useful guidelines for day-to-day facility management. Short and long-term management goals developed as part of this plan should address trail construction, timber harvest, gravel mining, wildlife habitat improvement, riparian area management, wildfire protection and other salient issues. The plan should address onsite biological conditions, ground cover conditions, visual penetration and absorption factors, and variations in

landform conditions and natural terrain which impact visual quality. The plan should be prepared by Trails & Waterways staff in consultation with Eveleth Area Forestry and Division of Waters staff.

3. LAKES, STREAMS & WETLAND EFFECTS

Water Surface Use
Nominal increases in surface water use are likely, especially of the Gilbert Pit (Lake Ore-be-gone). Increased use will result from higher campground occupancy expected to result from development of the OHVRA. This added boating traffic and angling pressure is not expected to significantly impact either water quality or the quality of the existing fisheries resource.

Water & Wetland Protection
The OHVRA was designed to protect water quality and to maintain hydrologic flow conditions. Vegetated filter strips will be maintained, as will the integrity of the Shore Impact Zone. Stable soils and slopes will be maintained along all lakes, streams, and wetland areas *(Fig. 20)*. Wetland and water crossings will be avoided, as will the physical or hydrologic alteration of surface waters. If necessary, the size and number of such crossings will be minimized. Water crossings will be designed to minimize disturbance by bridging water bodies (preferable to culverts) at their narrowest point and at a right angle. Construction-related activities are regulated under the authority of the Wetlands Conservation Act, DNR's Protected Waters Permit Program, Army Corps of Engineers' (COE) Section 404 Permit Program, and the Minnesota Pollution Control Agency's Section 401 Clean Water Act Certification process.

Impacts resulting from the draining or filling of wetlands, or portions thereof, will be avoided, minimized, or if intrusion is unavoidable, through on-site mitigation. Unavoidable wetland impacts must be mitigated according to provisions of the Wetlands Conservation Act, Executive Order 91-3, and under the COE permit program. Certain federally-protected wetlands may require avoidance (rather than mitigation) because artificially created wetlands are less effective at removing non-point source pollutants, and they do not always retain all of the characteristics of a naturally-functioning wetland. To increase the likelihood of successful mitigation, wetlands should be replaced in-place and in-kind. Natural wetland soils removed during trail construction should be used in wetland areas to provide a seed bank for natural revegetation. Restoration or rehabilitation of previously degraded wetland areas should also be considered.

Shoreland Protection
The entire 1,200 acre project site is located within the City of Gilbert, therefore riparian area use and development must comply with Gilbert's Shoreland Zoning Ordinance. Shoreland standards applicable to this project include: [9]

1) The minimum setback for structures located on *Natural Environment (NE)* lakes is 300 feet, or double the standard 150-foot setback for parking lots or similar structures on lakes classified as *DNR Protected Waters.* Water-dependent structures (e.g., lakeshore picnic site) may be located 150' from the shoreline;

2) Trails that are substantially screened from view from protected waters (by vegetation or topography) must be setback at least 150 feet from protected waters. Unscreened trails require a 300-foot setback, or double the ordinary high-water level setback;

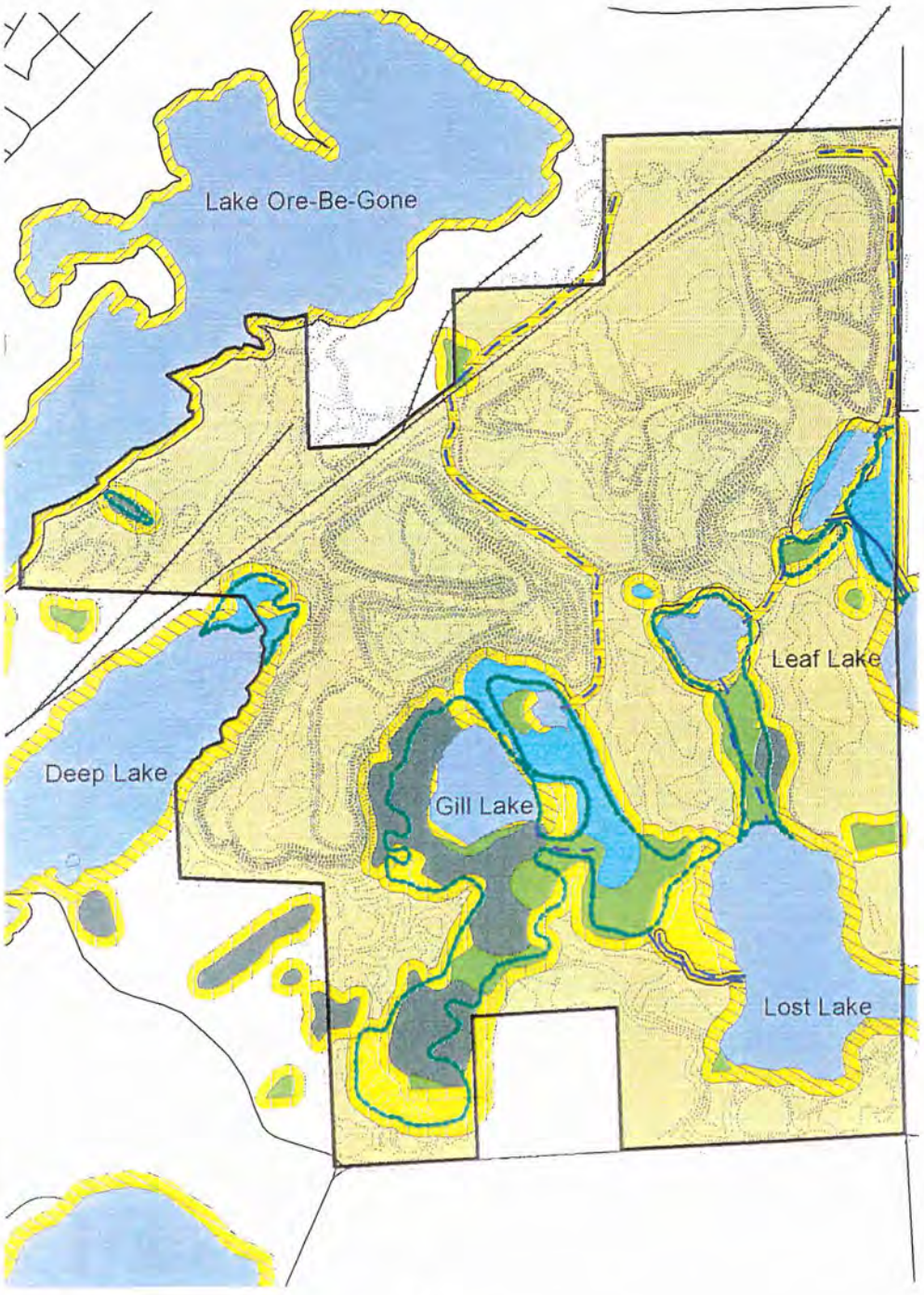
3) A setback of 100 feet is suggested for wetlands, ponds and lakes not classified as protected waters, and a 50 foot setback is required on either side of streams and ditches;

4) Structures must be set back 30 feet from the top of bluffs. State Shoreland Rules define bluffs and steep slopes as having average gradients of greater than 30 percent and 12 percent, respectively, and draining toward the protected water body. Bluffs rising more than 25 feet above the ordinary high-water level are of special concern

[9] Ordinarily, non water-dependent land uses should be located on parcels without public waters frontage. However, when such uses are located on public frontage, they must either be setback double the Ordinary High-Water Level (OHWL) setback, or be screened from view (from the water) by vegetation or topography. Since OHV activity is not specifically water-related, the required setbacks for this type of activity have been doubled. Lakeside picnic areas or overlooks may be placed 150 from the OHW mark.

Figure 20. Water-Related Activity Setbacks

Proposed Iron Range Off-Highway Vehicle Recreation Area



Legend:

- Project Site Boundary
- Existing Roads
- Railroad
- Streams
- Water Drainages
- Lakes

Wetlands (National Wetlands Inventory, NWI)

- Emergent
- Forested
- Scrub / Shrub

- Wetlands Boundary (Field Assessment)
- Water Related Setback Areas
  - Streams and Water Drainages (50 ft.)
  - Protected Lakes (150 ft.)
  - Non-Protected Lakes (100 ft.)
  - Wetlands - NWI and Field Assessment (100 ft.)

May 1997
Revised September 1997

Sources:
Reactions, OHV Consulting
LSA & Associates, Inc.
Minnesota Dept. of Natural Resources
Trails & Waterways Unit
Water Division

LSA

N

500 0 500 1000 1500 Feet

due to potential soil instability[10], soil erosion and sedimentation that could threaten water quality or undermine the integrity of poorly designed structures; and,

*5) T*he Shore Impact Zone is defined to be one-half of the structure setback, or 75 feet adjacent to NE lakes. State Shoreland Rules specify that landowners maintain the integrity of the Shore Impact Zone and minimize disturbance to this area. Driveways, roads and parking areas must meet structure setbacks and must not be placed within bluff or shore impact zones when other placement alternatives exist. When no feasible alternatives exist, these facilities may be placed within setback areas, but they must be designed to minimize adverse impacts. While the State of Minnesota is not required to obtain local project approvals, it is Departmental policy that DNR projects will conform with local government regulations to the extent possible.

Stormwater Runoff

All trails and other development features will be setback appropriately from water bodies. Where no feasible placement alternative exists, impacts will be minimized by maintaining as sizable a setback distance as is possible and by enhancing the vegetative filter strip. Stable, healthy, and well-vegetated riparian areas will be established and maintained around **all** water resources, especially DNR protected waters (i.e., Leaf, Deep, Lost, and Gill Lakes). Access to picnic or overlook areas adjacent to water bodies will be via (non-motorized) trails or paths which are landscaped to prohibit vehicular access. Vehicle access and parking must be setback 150' in shoreland areas.

Drainage and runoff management techniques will be employed, including grading of some slopes, water diversions, sediment traps and basins, grade stabilization structures, inlet/outlet protections, water bars, hay bales, check dams, silt fences and other features needed to control surface water movement and soil erosion *(Fig. 21 & 22).* Soil types, vegetation and moisture conditions will be considered when designing and locating trails to avoid soil compaction and rutting conditions which could impede hydrologic flow conditions. Proposed trail locations will be field checked and modified or relocated as appropriate to reflect actual site conditions. Soil integrity and other environmental indicators, will be monitored to gauge the appropriate level of use or longevity of trails, and in determining intervals between major restoration events.

Runoff management measures, including stormwater runoff devices, will be installed for the entire facility. Sedimentation basins will be appropriately sized and located. Vehicle washing facilities will be carefully designed and operated, especially as regards storage, treatment, and/or disposal, of oil, sediment, detergents and other potential contaminants. Sewage treatment facilities, including greywater facilities, will be installed if necessary and all necessary permits will be obtained. Construction specifications are detailed in engineering design plans and in the Stormwater Run-Off Plan submitted to MPCA as part of the NPDES permit process.

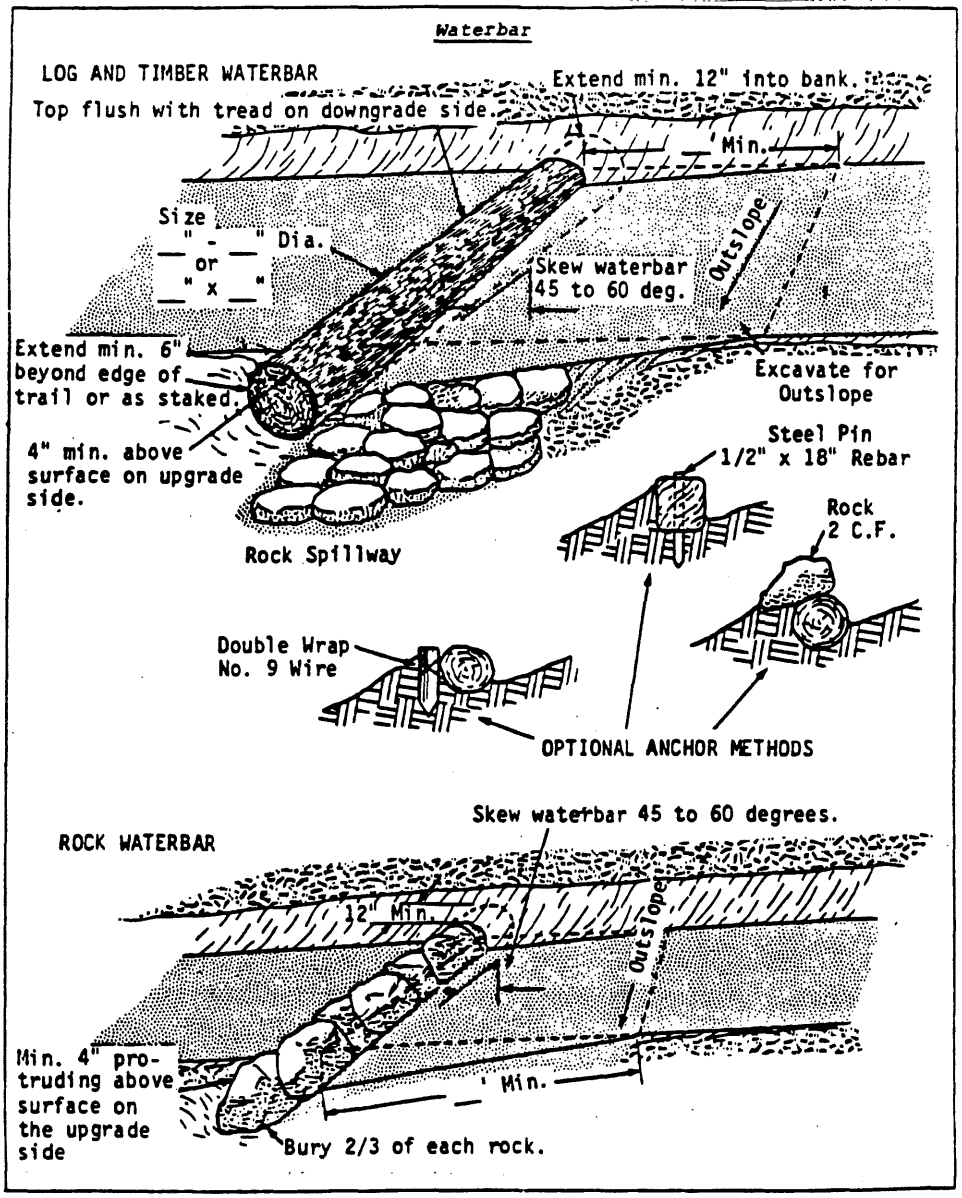
A controlled, managed and environmentally sustainable setting must be created wherein surface water quality and aquatic values are protected. Volunteers can be useful in monitoring trail conditions and reporting and/or repairing erosion problems. Ultimately, site managers must control the volume, velocity and direction of water movement in all public use areas in order to protect and maintain surface water quality.

Surface Water Quality

This site includes eight open water basins: Deep Lake, Leaf Lake, Lost Lake, Gill Lake, Gilbert Pit and three small, unnamed open water basins. Bluffs and steep slopes are of special concern, especially where they drain into surface waters. Neither of the two streams on-site are classified as protected waters. The smaller of the two streams flows along the east edge of the site at the toe of a mine dump. The larger stream (or ditch channel) cuts through the center of the property and carries the effluent discharge from the Gilbert Wastewater Treatment Plan as well as stormwater runoff from most of Gilbert.

[10] Bluffs and steep slopes are of special concern, due to concern for soil integrity and the potential for soil erosion and sedimentation to occur. Areas within on the proposed Gilbert OHV site with steep slopes include, but are not limited to, the SE side of Deep Lake; the E-NE sides of Lost Lake; the W-NW and N-NE sides of Gill Lake. The bluffs and steep slopes surrounding Gill Lake are, however, set back a distance of 1/3 mile from the lake itself.

Figure 21. Trail Design Typical: Water Bars



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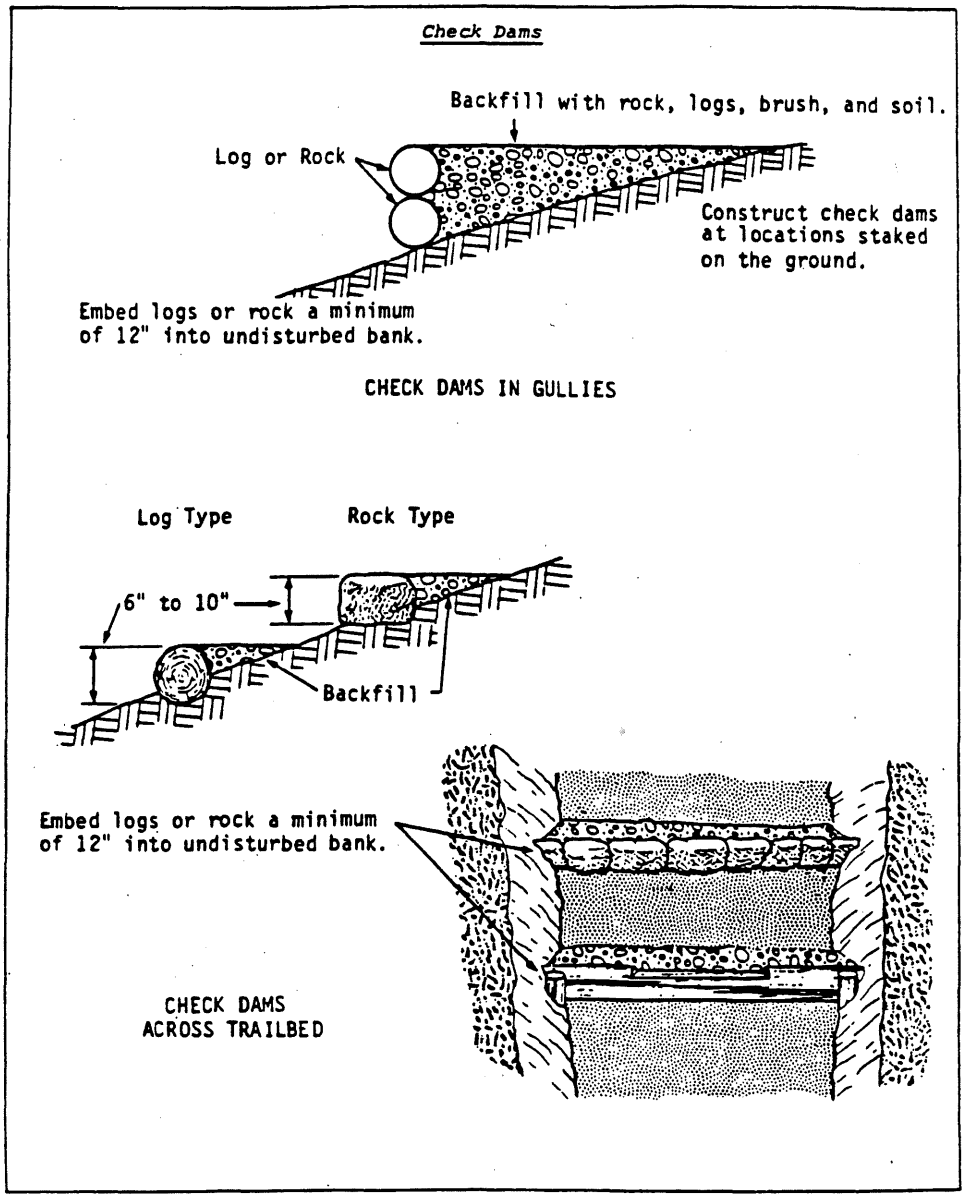
SOURCE: *USDA, Forest Service. "Trails Management Handbook" Forest Service Handbook #2309.18, Effective 11/08/91.*

Figure 22. Trail Design Typical: Check Dams



SOURCE: *USDA, Forest Service. "Trails Management Handbook" Forest Service Handbook #2309.18, Effective 11/08/91.*

The lakes, streams and wetlands within the project site are important biological features. These areas are fragile, and soil disturbance or loss of vegetation can trigger erosion, sedimentation, and degradation of the aquatic environment. One of the primary resource management objectives of this project is to maintain or enhance water quality and flow characteristics on-site, especially for those water bodies that are classified as protected (e.g. Leaf, Lost, Deep, and Gill Lakes). Maintaining activity setbacks from lakes, streams and wetlands is the single best method of protecting water quality. Potential water quality issues include the following:

1. **Soil Erosion & Sedimentation.** Sedimentation is the principal threat to surface water quality at the OHVRA. It can result from poor trail design, construction or maintenance, or from unauthorized OHV use. Trails themselves can obstruct normal water flow due to soil compaction or rutting, resulting in localized problems following major precipitation or snowmelt events. All roads and trails will be properly engineered and constructed to control surface water runoff and minimize potential erosion effects. Regular maintenance will ensure that erosion control devices are operational and that sedimentation is kept in check.

2. **Flooding.** Portions of the OHVRA site may be subject to temporary flooding during heavy precipitation events or during rapid spring snowmelt. Visitor access may be temporarily restricted during wet periods to protect roads and trails and to limit soil rutting, compaction and potential erosion problems.

3. **Surface Water Quality.** Potential impacts to surface water quality will be managed via an integrated system of water control, diversion and treatment devices so that no significant effects occur. Vehicle wash facilities will be self-contained and will collect, recycle and reuse wastewater.

4. **Streamflow Patterns.** Existing streamflow patterns will not be significantly altered by the project. Riparian area setbacks preclude any development or motorized use activity within specified shoreland buffer zones. No water or wetland crossings are planned. If crossings occur, they will be accomplished without major disruption to the hydrologic functioning of surface waters or wetlands.

5. **Groundwater Quality / Quantity.** Potential groundwater pollutants and contaminants will be intercepted and disposed of off-site. Existing debris and contamination will be cleaned up and disposed of properly. OHVRA operation poses very little risk for groundwater contamination. Increased use of groundwater for drinking and vehicle washing will not significantly tax available groundwater supplies.

Mitigation Measures

Trail development and maintenance impacts can be minimized by mulching, through the use of soil stabilizers, silt screens or seeding to re-establish vegetative cover. Vegetated filter strips and sediment basins act to trap and filter runoff. Vegetation is especially effective at slowing down surface water movement and in trapping dissolved nutrients that might otherwise runoff into adjacent surface waters. In shoreland areas, trail corridors must be closely monitored to ensure that stream bank erosion does not occur and that emergent vegetation is undisturbed. The Stormwater Management Plan details runoff management and mitigation methods.

Surface Water Quality Monitoring

It is suggested that surface water quality be checked periodically for possible pollutants or contamination. Careful monitoring is recommended, in part due to past use of the site (i.e., heavy mining, illegal dumping, asphalt plant, slurry operation). If pollutant levels exceed acceptable maximums, the frequency of testing should be increased and rehabilitation and/or restoration measures should be implemented. County and State health standards establish threshold contaminant levels, chemical analysis protocols and evaluation criteria for testing surface water quality. Water quality monitoring will be the responsibility of Trails and Waterways staff.

Water Quality - Wastewaters

Vehicle washing facilities will be self-contained in order to minimize the potential for accidental introduction of contaminants or exotic species into the local environment. Wastewater will be collected, filtered and recycled in order to prevent contamination. Self-contained portable and/or vault toilets will be used on this site; neither will discharge sewage or effluent to surrounding soils or water bodies. Disposal will be done in by a certified operator at a state-licensed facility.

A field well inventory will be conducted and any abandoned wells will be sealed in compliance with requirements set forth under *MN Rules, Chapter 4725.* Any new wells will be installed by a licensed well contractor. All wells will be equipped with backflow prevention devices to prevent accidental contamination of subsurface aquifers. Drinking water wells will comply with provisions of *MN Rules Chapter 4720* as regards public water supplies. The Minnesota Plumbing Code *(MN Rules Chapter 4715.1710, Sub. 2)* will guide the placement and operation of drains, sewer lines, stormwater pipes or conduits, and any onsite sanitary facilities or sewage treatment systems. Plumbing plan approval is required **prior** to the construction of permanent sanitary facilities.

Ditches containing the effluent from the Gilbert Wastewater Treatment Plant, which combines with stormwater and flows through the site and into Lost Lake, will be fenced to avoid possible contamination or a public health hazard. Plant discharge is currently disinfected from April - October each year in order to reduce public health risks. While unlikely, the possibility of "bypass events" (i.e., wastewater not being adequately treated due to high flow conditions) must be considered. The plant does contain a retention tank which allows operators to temporarily divert sewage during high flow conditions, making bypass events less likely.

Vehicle Wash Facility.
The Vehicle Wash Facility will be limited to cold water washing, using no chemical or detergent cleaning agents so that dirt and debris are removed, but no hydrocarbons, antifreeze, pesticides, herbicides, phosphates, oils or greases are released. The US Environmental Protection Agency (EPA) considers this type of cleaning method (i.e., cold water rinse) to produce wastewater comparable to that generated by a rain event. Washing will be limited to cosmetic cleaning of non-hazardous items and no degreasing, acid or two-step washing, heavy brushing, or aluminum brightening will be permitted. This will minimize the potential for wastewater contamination.

Visitors will be required to rinse their vehicles before leaving the facility to limit the potential spread of exotic plant spores, seeds and other plant materials. Pre-washing of OHVs, for the same purpose, will be encouraged, but shall remain optional. Exotic species control efforts will be detailed in the vegetation management plan for the OHVRA.

Dirt, sand and debris collected along with the wash water will be deposited into specially-designed wash pits bermed to contain the wash water. A sand trap and oil absorbent boom and pad will then filter wash water with the aid of a clarifier, coalescer, oil/water separator and/or grease traps as necessary. Water will be filtered and reused. Sand and wastewater removed from the site will be disposed of at an EPA-approved Commercial Waste Disposal Facility. This vehicle wash system will comply with EPA requirements for stormwater runoff, and all necessary permits will be obtained to ensure compliance with provisions of the federal Clean Water Act.

Groundwater Protection
Given the permeability of OHVRA soils and the shallow depth to groundwater, combined with the presence of fuels, lubricants and coolants onsite, it is prudent that OHVRA Staff prepare a spill contingency plan to prevent potential groundwater contamination. This plan should set forth detailed procedures for confining, collecting and removing any petroleum-based spills or accidental releases. It should address spillage detection needs, run-off prevention, and the need for impermeable pads, basins, dikes and/or hardened surfaces for use in refueling, oil changing, or vehicle maintenance. The possibility for both long-term cumulative groundwater contamination and/or catastrophic events should be addressed. Waste oil removal, recycling and reprocessing at appropriate (off-site) facilities should also be discussed, as should general prohibitions on public refueling and/or the use of petroleum products onsite. Plans for any mobile or stationary fuel storage tanks should be described, along with plans for maintaining the vehicle wash facility and for separating trace petroleum products from stormwater runoff. Any onsite fuel storage must comply with *MN Rules Chapter 4725* and *MPCA Rules Chapter 7100.0010* and employ the best available control techmologies.

4. FISH, WILDLIFE & ECOLOGICALLY SENSITIVE RESOURCES

Biological Resources
Most of the biologically sensitive resource areas will be retained in their current condition and remain off-limits to OHV use. Potential impacts on vegetation and wildlife have been minimized by:

- Observing both wetland/shoreland setbacks and substantial noise buffers. Motorized use will occur on approximately 500 acres or 42% of this 1,200 acre property.

- Requiring the installation of vegetative filter strips, visual buffers and non-motorized buffer areas.

- Avoiding known population locations of *Botrychium rugulosum* and *Botrychium pallidum.*

- Avoiding forested and wetland areas in Section 36 (about 600 acres) of the OHVRA site.

Wildlife Habitat Disturbance and Population Effects
Land uses that destroy, disrupt or permanently disturb wildlife or their habitat will tend to displace resident wildlife populations. Since it is generally assumed that habitats surrounding the project area are at or near carrying-capacity, displaced populations and individuals will, over time, be reduced through mortality. The most common species on this site are likely quite tolerant of disturbance. Common species (e.g., white-tailed deer, red fox, raccoon, robins) which are tolerant of, and in some cases thrive upon disturbance and early successional vegetative stages, will not be severely impacted at either the site-level or the population-level by a project of this scope and size. Individual animals will adjust their habits depending upon the design of the project and the total volume of use the area receives. These species will simply take advantage of favorable habitat changes and avoid undesirable changes. Long-term effects, while not well understood, are not thought to be profound.

Species that either do not tolerate disturbance or require later successional stages, will not fare as well. However, without an on-site inventory, assessing impacts to individual species is not possible. Information on these less adaptive, less tolerant species is not readily available. No identified species will be affected on a population level by this project, as long as proper avoidance and mitigation steps are taken. Seasonal closures of certain habitat areas may be used to minimize reproductive disturbance.

The DNR will revegetate some of the stockpiles and tailings basins not slated for OHV use. This ongoing natural process will be augmented with plantings of native plant species. If successful, habitat could be provided for some common species tolerant of human disturbance, and for species that prefer early successional vegetation or 'edge' habitat (e.g., deer, snowshoe hare, fox, various small mammals, Robin, Tree Swallow, Common Crow, Chipping Sparrow, etc.)[11]. It should be noted that proposed habitat improvements would not be sufficient to offset negative site-level habitat effects resulting from trail construction and motorized use.

Habitat is the key to sustainable plant and animal populations. At a landscape scale, this project will have wildlife impacts comparable to those resulting from other developments impacting a similar acreage. At the site level, impacts will be more noticeable, especially in Section 36. However, since disturbance to Section 36 will be minimal, population-level wildlife impacts should also be minimal. Of equal concern, is the potential for new commercial or residential development, outside of the OHVRA boundaries, spurred by OHVRA visitor traffic and associated economic activity. Cumulative (project-generated) environmental impacts, while often poorly understood or undocumented, can sometimes be more extensive and deleterious than those generated by the original project itself. Local Planning & Zoning Officials should monitor land-use changes in the vicinity of the OHVRA spurred by increased recreation-related traffic and tourism.

Biological Productivity
The productivity of plant communities in areas directly impacted by off-highway vehicle use will be reduced to essentially zero (e.g., road and trail surfaces, parking areas, staging and scramble areas). This can have negative repercussions for species higher up the food chain, because reductions to the production base (plant life) diminishes the total biomass supportable at higher trophic levels. However, because proposed disturbance to Section 36 is

[11] From a recreation management standpoint, site revegetation is also desirable for improving scenic and aesthetic quality, for stabilizing erodible soils, and for buffering motorized activity from non-motorized use areas or adjacent properties. Vegetation is also useful for screening and/or spatially separating OHV trails, and for discouraging unauthorized off-trail travel. [See the Vegetative Cover/Forest Resource Assessment Report or the OHVRA Master Plan for more information on site reclamation and visual resource management plans.]

relatively light, the net impact on wildlife populations will depend upon the actual 'footprint' of OHV use and site development. This localized impact can be calculated by comparing impacted areas before and after construction as a percentage of total vegetated area. Local wildlife populations will ultimately adjust to this new intrusion, in most cases at lower levels. Known wildlife populations should not decline to a point of concern as a result of this project.

Habitat Connectivity

The connectivity of this site to other habitat areas is relatively poor to the north and good to the south. This is consistent with similar sites near towns and concentrated human activity. The distance to similar habitat types to the north is about 1.5 miles. Travel corridors suitable for most species do traverse abandoned mine dumps in the area. Although there are barriers to the south, there is a direct connection toward the southeast to a large block of contiguous habitat. The cultivated fields or abandoned fields to the south pose no greater hindrance to most wildlife species than would natural habitat types. Connectivity within the site is good, particularly within Section 36. The wetlands and lakes are well dispersed. Travel between habitat types is possible along narrow corridors (of similar type) or across similar narrows of other habitat types.

Biodiversity

There has been no wildlife species inventory conducted at this site. *[See Appendces F & G for Cover Type Data and Plant/Animal Species Lists, respectively]* Given the diversity of habitat types, however, indigenous species likely visit the site at some time during the year. Testing this hypothesis, however, would require an investigation spanning several years. The Heritage Data Base does not identify rare species in areas that would be directly affected by OHV use, nor is there evidence to suggest that overall biodiversity in the surrounding area will be appreciably or materially diminished.

Habitat Fragmentation

Trails, parking lots and other developments will increase fragmentation of existing habitat blocks. The difficulty of traversing these areas to reach other suitable habitat will be variable, however, depending upon the species and habitat in question. Most impacted will be those species inhabiting the site that are not very mobile (e.g., small rodents). More mobile animal species (e.g., deer, birds), and those plant species that have seed dispersal mechanisms that allow for wide dispersal (e.g., cottonwood), will not be greatly affected in terms of their species range or population genetics. Impact avoidance, minimization and mitigation strategies follow:

1. Avoid wetlands.
   a) Maintain shoreland and wetland setbacks.
   b) Use appropriate water quality BMP's where needed.

2. Avoid steep slopes and erodible soils. Concentrate development/traffic on stable, disturbed soil types.
   a) Restrict user access under wet conditions.
   b) Limit the scope of the project consistent with environmental conditions.

3. Route trails around rather than through contiguous habitat types.
   a) If necessary, cross so as to minimize fragmentation and preserve connectivity.
   b) Keep trails as narrow as possible in sensitive areas to minimize fragmentation.
   c) Maintain forest canopy cover whenever possible.
   d) Use a one-way trail system whenever possible to minimize trail width.

4. Use natural barriers or install man-made barriers to control vehicle access.
   a) Avoid sensitive natural areas (wetlands, forested areas, steep slopes with unstable soils).
   b) Plant and maintain vegetative barriers and filter strips adjacent to OHV trails.
   c) Use topographic features or landscaping to screen trails and discourage unauthorized OHV use.
   d) Use fencing, large rocks or other barriers to protect vegetative barriers and filter strips.

5. Avoid endangered, threatened or special concern species.
   a) Avoid nesting sites or critical habitat features identified during project planning, design or construction.
   b) Follow DNR's Forest Wildlife Guidelines for Osprey, Bald Eagle and for colonial waterbirds.

Mitigating Impacts to *Botrychium rugulosum & Botrychium pallidum*
Uncertainty exists with regard to how OHVRA operations will impact onsite *Botrychium* populations. It is also unknown which factors have most influenced the establishment of current populations at this site, other than the tendency of this genus to colonize recently disturbed sites. The site's mining history apparently has something to do with meeting the plant's specific establishment criteria. The project Environmental Impact Statement *(DNR, Sept. 1998)* dealt specifically with potential *Botrychium* impacts, and ways to avoid, minimize and mitigate such impacts. Selection of the final design alternative was based, in large part, upon this analysis. Mitigation measures identified in the Final EIS are outlined below. These shall be implemented as appropriate.

Specific Mitigation Measures
Upland areas containing identified state-listed grapefern habitat (and specimens) will be signed and fenced as permanent 'No Impact Zones' in order to prevent motorized use of this area. Designation of permanent 'Minimal Impact Zones' may be necessary to provide an additional buffer in some areas. Secondary or auxiliary trail development from existing backbone trails in this area will be prohibited. The feasibility of installing vegetative wind breaks will also be evaluated, both to limit the transport of dust and exhaust emissions, and to provide a visual screen for protected areas. Incorporating St. Lawrence Grapefern management goals into day-to-day operations planning can also help to mitigate adverse impacts to the ferns. Interpretation of the *Botrychium* populations present on the site should be considered. User education will help to protect these rare plant populations over the long term.

Other suggested measures for avoiding, minimizing and mitigating potential impacts to onsite *Botrychium* populations include the following:

1. Conduct a pre-construction site survey to further delineate grapefern populations (especially those) located in Basins A and B. This survey should be conducted by a qualified botanist.
2. Designate permanent 'No-Impact' and 'Buffer Zones' prior to construction activity. These zones should be incorporated into the final design and engineering plans for the OHVRA.
3. Install fencing and/or barriers to cordon off areas with grapefern and/or moonwort populations. This should apply to both tailings basins as well as the upland area between the basins.
4. Prohibit the development of new trails in the upland area between basins; and restrict access and use to existing trails. Fence these trails to discourage unauthorized off-trail travel.
5. Install wind-breaks to limit potential dust transport into Botrychium habitat areas.
6. Monitor the status of endangered and threatened species populations present at the site.
7. Provide education and interpretive opportunities at the OHVRA.
8. Provide funding for research and protection of *Botrychium* populations at this and other sites.

Pale Moonwort *(Botrychium pallidum)*
The project does not include provisions for recreational use or new development to occur in the area identified as containing pale moonwort populations. Existing roads and trails will continue to be used, but no new trails are planned. No taking is anticipated. The DNR is committed to complete avoidance of this state-listed species. The area containing pale moonwort specimens will be designated as a 'No Impact Zone' and minimal intrusion buffer regions will be created and maintained. Indirect impacts, stemming mainly from habitat degradation or limited human incursion, are unlikely given prohibitions on public access to this part of the site. It is uncertain how the pale moonwort population at the proposed OHVRA site will be affected long-term by facility operation.

5. SOILS, TOPOGRAPHY AND DRAINAGE

The soils on the proposed project area consist of two general groups: 1) those in a relatively undisturbed state, primarily in Section 36, and 2) those altered by iron mining activities. The principal concern is accelerated (mechanical) soil erosion due to improper design, construction, grading or failure to adequately control surface water runoff. This site is also at-risk for wind and gully erosion. Uncontrolled soil erosion can lead to the sedimentation of surface waters and wetlands, degradation of aquatic habitat, and disturbance to the natural (hydrologic) functioning of wetland areas.

It is important that the OHVRA be established and maintained in a condition that allows for sustained long-term use. The protection of public safety, and the conservation of land and natural resources are of utmost concern. Accordingly, every effort must be made to anticipate and prevent accelerated or unnatural erosion, and to restore lands already damaged to the extent possible. The following guidelines should be observed:

1. All roads, trails and event areas should be managed for sustained use. No off-site soil loss shall occur above naturally occurring levels.
2. Maximum disturbance should not exceed the ability to rehabilitate and restore pre-existing site conditions.
3. All roads and trails should be constructed, at a minimum, to the standards contained in the AMA Trail Design and Construction Guidebook *(Wernex, 1994)*.
4. No development or use should occur on areas rated "impossible" to revegetate or otherwise rehabilitate.
5. Areas with a "high" or "very high" erosion hazard rating should be restricted to road and trail use only.
6. Major active erosion features should be carefully avoided during facility construction, operation and use.
7. Barriers should be erected to limit the spread of open areas and 'scramble' areas.
8. Infield and parking areas should be covered during non-use (e.g., vegetation, mulch, straw) and regularly watered and disked during event activity to reduce wind and mechanical erosion of loose soils.
9. Volunteer or unauthorized trails or tracks should either be designated and managed or closed and rehabilitated upon discovery.
10. Firebreaks or fuelbreaks should be constructed and gated such that they effectively restrict OHV use or access.
11. Necessary repairs, rehabilitation, trail re-routes or soil replacement should be consistent with both the erosion control plan and vegetation management plans for the facility.
12. Employ the *Erosion Hazard Rating System*[12], or a similar analytical tool, to evaluate and monitor erosion hazards in the OHVRA.
13. Site maintenance and monitoring plans should describe in detail **what** is required, **when** repairs are needed, **how** repairs should be undertaken, **who** will effect these repairs and at what cost.

Soil Erosion, Compaction and Rutting

Soil erosion is dependent upon many factors including soil texture, slope, aggregate stability, infiltration rates, subsoil permeability, ground cover, adjacent runoff rates and the existence of subsurface restricting layers. Approximately 46% of the undisturbed soils have a high erosion susceptibility rating and 21% are moderately susceptible. When these soils occur on steep slopes (8 to 18%), the potential for erosion is increased. Erosion will occur when unsurfaced trails are located on these soil types, especially on steep slopes or if vegetation and surface litter layers have been removed through use. Erosion poses an on-going maintenance concern. Unchecked it can lead to reduced timber productivity and sedimentation in adjacent wetlands and/or surface waters. Mitigation methods include maintaining a crowned trail cross-section, various mechanical water diversion devices, minimizing the slope gradient, and installing settling basins and vegetated filter strips to receive and treat run-off.

Soil Compaction

Soil compaction rearranges and compresses soil particles when external pressure (e.g., wheel of a vehicle) is applied that exceeds the resistance or load-bearing strength of the soil. Soil strength is dependant on moisture content. On moist soils, compaction can occur in a single pass of equipment or through repeated passes of light equipment. Roughly 72% of the undisturbed soils are highly susceptible to compaction. The length of time that soils remain moist dependant upon soil drainage, landscape position and the rate of uptake from trees and vegetation. Soils generally dry quickest on mid and upper hill sides and retain moisture longest on lower hill slopes and in level or depressed areas. Compaction increases soil density and decreases the ability of a soil to absorb water. This increases the likelihood of runoff and erosion on hillsides causing water to collect in depressions and on level areas. Mitigations include restricting vehicle operation during wet periods when compaction is most likely, and restricting motorized use to specific areas to limit the areal extent of compaction, while rehabilitating other areas where compaction and rutting have already occurred.

[12] The Erosion Hazard Rating (EHR) System was jointly developed by the California Department of Forestry's Soil Vegetation Survey Program and the USDA Soil Conservation Service. The EHR determinations were developed in response to the California Division of Forestry's need to evaluate timber harvest plans as required by the State Forest Practices Act. CDF/SCS reports are a critical component of these plans.

Soil Rutting
Roughly 45% of the undisturbed soils are very susceptible to rutting, especially when wet. Rutting interrupts the lateral subsurface flow of water through soils with "hardpans" such as the Hibbing Type, making the soil upslope wetter for a longer period. Ruts also collect and hold surface water. Mitigation can include minimizing vehicle operations during periods of wet weather; using existing roads and trails to avoid new construction; frequent maintenance or trail grooming, surfacing more heavily used trails; constructing bridges over persistent wet spots; and maintaining a crowned trail cross-section and the proper surface drainage structures. Recommended construction techniques and specific mitigation measures are listed in Chapter IV. Mud Drags will be held in a self-contained, concrete-lined mud pit containing an (artificial) mix of clay and water. Naturally-occuring mud and low-lying or wet areas will be generally off-limits to motorized use.

Trail System Erosion Controls
Concentrated runoff from the trail and areas upslope should be intercepted before the volume and flow velocity become erosive and difficult to control. Divert the intercepted runoff across, or preferably beneath, trails to their outer slope. Disburse the diverted runoff to a natural channel downslope to limit erosive effects. Provide siltation basins in all major drainages at a point of exit from the site. Always consider soil integrity in gauging the appropriate level of use or longevity of trails and in determining intervals between major restoration events. The report: *"Soil Conservation Guidelines/Standards of OHV Recreation Management" (CA Dep't of Parks & Recreation, 1991)* should be consulted for detailed guidance for preventing and controlling soil erosion.

On the interior trail system, where the upslope area is relatively small, drainage dips will divert runoff across the surface of the trail, disbursing it to the natural slope *(Fig. 23)*. As levels of use increase, or where runoff volume is large, the diverted runoff should be carried under the trail in a culvert or pipe rather than across the surface of the trail. The high velocities of flow that normally develop downslope should be dissipated before the runoff is disbursed back onto the natural surface by using a barrier such as a pile of large rocks. Diverted runoff should not be disbursed onto the surface of the fills placed along the trails, since these are often unstable and easily eroded.

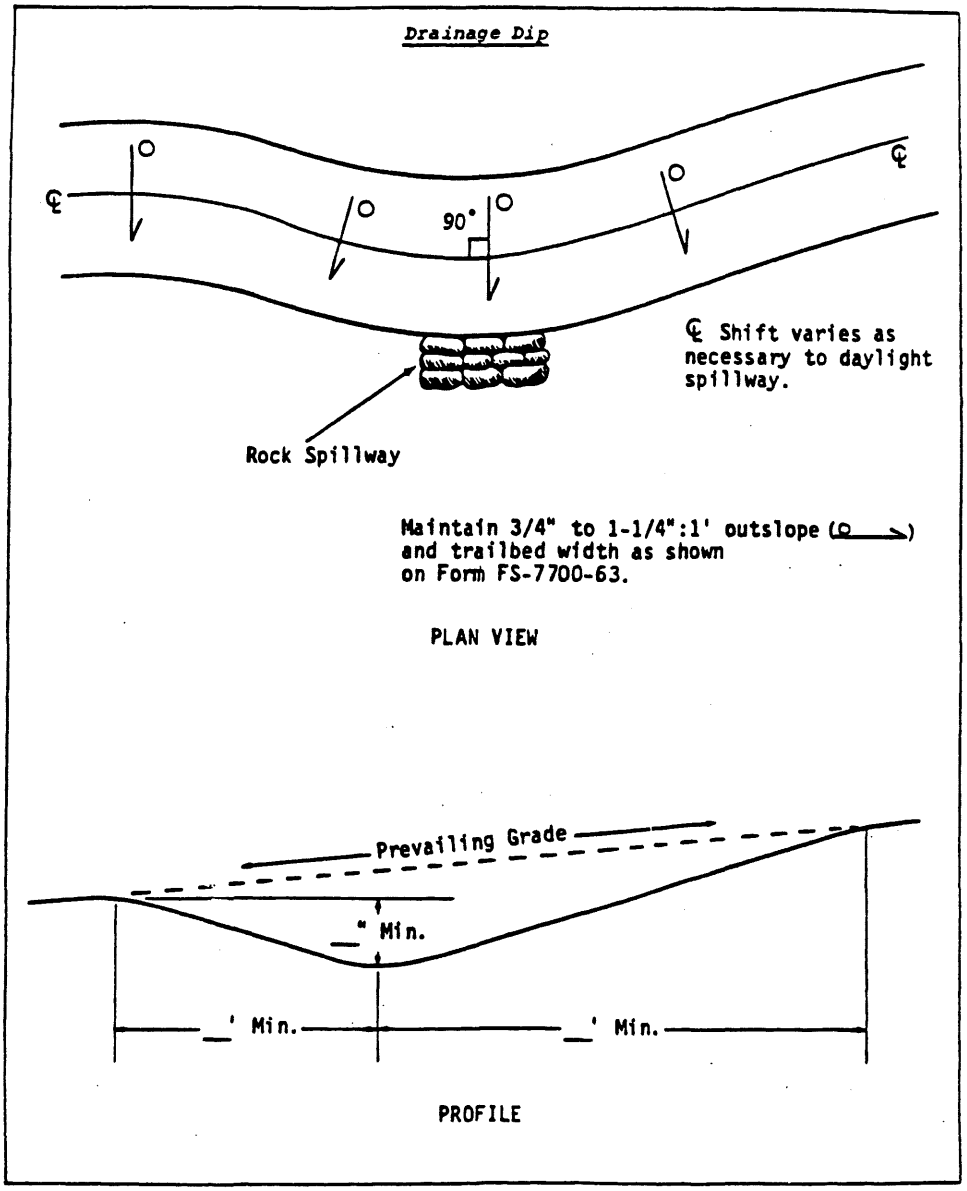
6. VEHICLE EMISSIONS & AIR QUALITY

For the purposes of this project, "air quality" is defined by the level of vehicle emissions and particulates released into the air. Particulates are defined as either TSP (Total Suspended Particulates) or PM-10 (particulates <10 microns in diameter). PM-10 is actually a subset of TSP, and it is sometimes known as inhalable particulate matter because particles can lodge in the cilia of the lungs and not be exhaled. The DNR is committed to meeting all applicable state and federal noise, dust and ambient air quality standards.

The criteria used to evaluate existing air quality are the State and Federal Air Quality Standards. There are primary and secondary ambient air quality standards, based upon annual and 24-hour averages, both for PM-10 and TSP. "Primary standards" define levels of air quality that protect people's health. "Secondary standards" define air quality levels needed to protect property, including crops and livestock, from damage or deterioration. Secondary standards also are intended to prevent public annoyances, nuisances and transportation hazards *(MPCA Rules Sect. 7005.0010, Ambient Air Quality Standards)*. State and federal standards allow for one exceedence per year of the 24-hour particulate standard. MPCA maintains an ambient air quality monitoring station on the roof of Virginia's City Hall. The proximity of the monitoring station to the OHVRA site should provide for adequate assessment of air quality issues. On-site monitoring will be used to supplement regional air quality data.

Vehicle Exhaust Emissions
This project will create vehicle exhaust emissions both during construction and subsequent operations. Diesel fuel exhaust emissions include ozone (0_3), carbon monoxide (CO), nitrogen oxides (NO_X), reactive organic gases (ROG), sulfur dioxide (SO_2), and suspended particulate matter (PM10), all of which are criteria pollutants with associated health risks. Equipment travel on unpaved surfaces will also create fugitive dust. This dust includes both PM10, which can create respiratory problems and Total Suspended Particulates (TSP) which has a nuisance value (e.g., soot, dust, fumes, mist, aerosols).

Figure 23. Trail Design Typical: Drainage Dips



SOURCE: *USDA, Forest Service. "Trails Management Handbook" Forest Service Handbook #2309.18, Effective 11/08/91.*

Operational impacts will result both from highway vehicles and from the off-highway vehicles used on site. Construction and maintenance related vehicle emissions arising from the use of heavy equipment for trail clearing, grading, grooming and construction will be minor and of a temporary nature. Off-highway vehicles, however, are not generally subject to tailpipe emission standards. Consequently, OHVs can create pollutants that linger, especially at intersections or wherever vehicles congregate. These potential "hot spots" could produce emission levels that, during heavy use periods, may approach state and/or federal ambient air quality standards.

Although reliable data on two-stroke engines (over 85% of ROG emissions) is unavailable, total vehicle emissions are not expected to lead to significant degradation of local or regional air quality. Increased engine efficiency, combined with a gradual shift to four-cycle engine designs, is expected to reduce OHV emissions to an inconsequential level over time. Precipitation, wind and abrupt topography will also act to dissipate and dilute emissions. The DNR will monitor ambient air quality (on-site) as part of a broader environmental monitoring program designed to track the health of this site and document actual effects over time.

7. NOISE, DUST & ODORS

OHV Noise Effects

The current ambient noise profile of the Gilbert site is generated by birds, wind, highway traffic, commercial and industrial activity, train traffic and aircraft flyovers. Noise is also generated from residential and recreational activity, including current OHV use of the area. In evaluating OHV noise effects, various factors must be considered. The location and distance of the noise source relative to the receiver determines, in large part, how loudly OHV noise is perceived. Wind, temperature, topography and foliage conditions are other important variables influencing sound propagation. Even the direction of travel, the surface or grade on which OHV activity occurs, and the number, type and noise producing character of the OHVs (i.e., 2-stroke vs. 4-stroke) will influence sound propagation. The location and design of planned sound berms, buffers and barriers will also influence noise levels at noise-sensitive receptor locations surrounding the Gilbert Site.

Sound Demonstration Testing

Sound demonstration tests were conducted at the Gilbert Site November 8-9, 1996 (ambient only) and again on May 10-11th and August 16-17th of 1997. Residential properties surrounding the proposed OHVRA were considered noise-sensitive for purposes of this analysis. The unique character of motorcycle and ATV noise due to their high pitch was a critical factor used to evaluate noise effects and to gauge probable annoyance. Design criteria of L_{50} = 45 dB(A) and L_{10} = 50dB(A) were applied to motorcycle and ATV noise, while 4x4 vehicle activity was evaluated using the State Standard of L_{50} = 60 dB(A) and L_{10} = 65 dB(A) for both tests *(Table 9)*. Meteorological conditions were closely monitored during testing.

This voluntary 10-15 dB(A) reduction from State Standards (i.e., twice as restrictive) was attained in all test areas of the preferred design plan by **1)** increasing activity setbacks and buffer distances, **2)** by recommending sound berms in several specific locations, and **3)** through a variety of design changes and vehicle use restrictions intended to limit off-site noise effects. The preferred development plan maximizes vehicle use of areas where terrain or vegetation provide a natural buffer, or where there is no direct line-of-sight to neighboring properties.

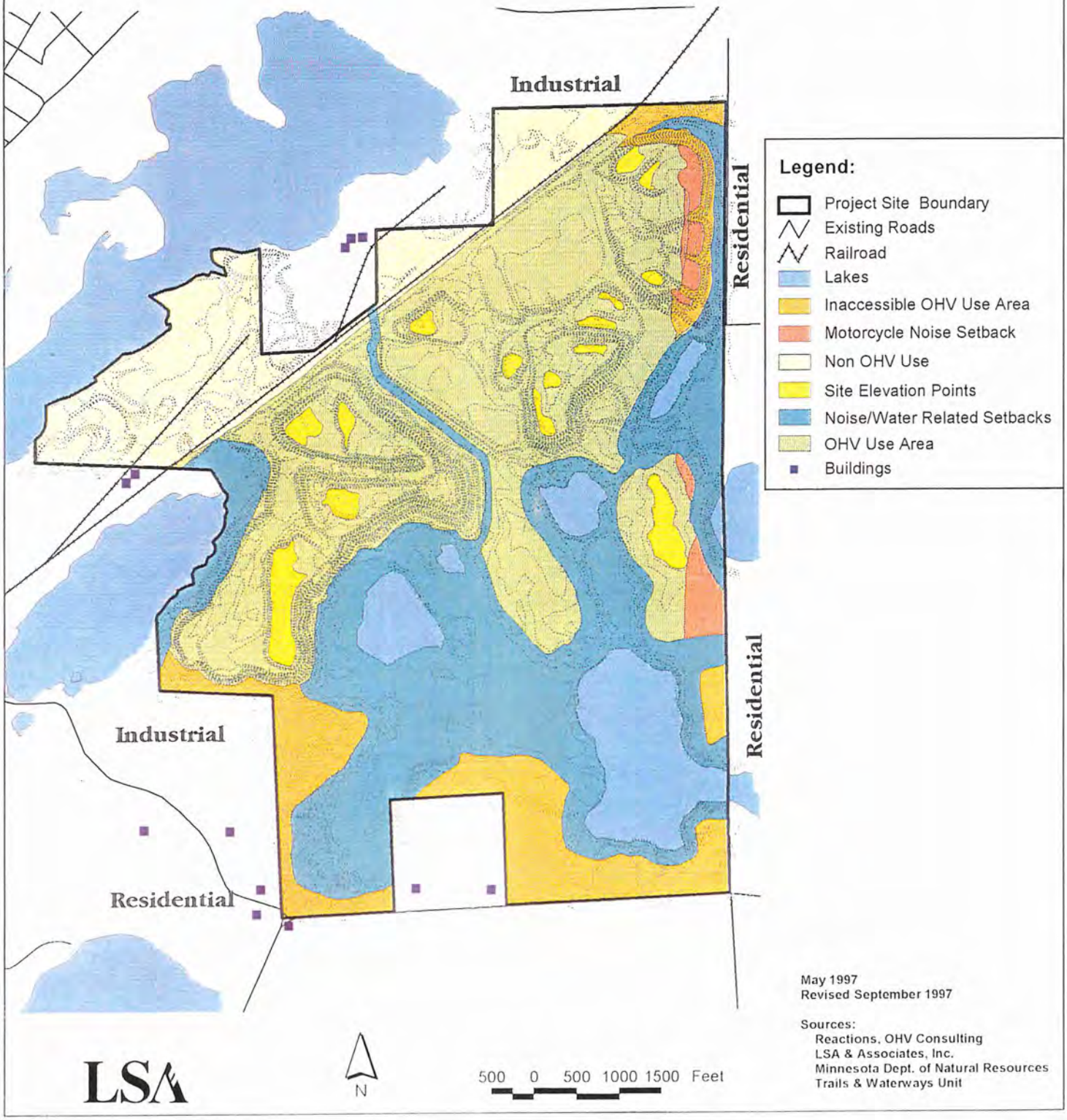
Table 9. Minnesota State Noise Standards; OHVRA Design Criteria

	SOUND LEVEL in dB(A)				Design Criteria	Design Criteria
Land Use	**Day L50**	**Day L10**	**Night L50**	**Night L10**	**Day/Night L50**	**Day/Night L10**
Residential	60	65	50	55	45	50
Commercial	65	70	65	70	NA	NA
Industrial	75	80	75	80	NA	NA

Source: *MN Rules,Chap. 7030.* Standards consistent with speech, sleep, annoyance and hearing requirements for each land-use classification. L10 is the sound level exceeded 10% of the time (i.e., 6 min/hr) and L50 is that sound level exceeded 50% of the time (i.e., 30 min/hr).

Fig. 24. Noise & Water-Related Activity Setbacks, Minnesota Standards, DNR T&W, 1997.

Proposed Iron Range Off-Highway Vehicle Recreation Area



LSA

May 1997
Revised September 1997

Sources:
Reactions, OHV Consulting
LSA & Associates, Inc.
Minnesota Dept. of Natural Resources
Trails & Waterways Unit

Noise demonstrations were **not** used to calculate vehicle setbacks or to determine buffer or trail locations. They were conducted in order to more accurately gauge the influence of topography and foliage conditions on sound propagation, and to confirm basic noise calculations. The tests also gave DNR Staff and consultants an opportunity to modify and refine activity setbacks, planned traffic patterns and suggested sound berm locations based upon simulated onsite OHV activity.

Construction of Sound Berms

Earthen berms will be constructed at several locations to limit off-site sound propagation. Table 10 provides the results of barrier computations for three proposed barrier locations. Campsite-to-Event Area computations assume 40 vehicles with an average noise level 5 decibels greater than open-riding vehicles. Note that the barrier reduction achieved with a 22' high berm is 3.7 decibels relative to the no-barrier case. Although this is not a significant reduction, it is considered beneficial and construction of a berm near the trail is recommended. The actual height, length and specific location of the berm will be determined as part of the final engineering design process. Activity setbacks and suggested berm locations were not significantly influenced by the demonstration tests.

Table 10. Berm Heights/Locations; Computations Summary [Source: J.J. Van Houten & Assoc. 1997][13]

Computation Number	Distance to Receiver (ft)	Number Of OHVs	Source Elevation (ft)	Receiver Elevation (ft)	Source to Barrier Dist.	Berm Height In feet	Difference In dB(A)
Residential Property to the East							
I-1B	50	5	1,500	1,415	50' to 600'	0	0.0
I-1C	50	5	1,500	1,415	50' to 600'	6	5.1
I-1D	50	5	1,500	1,415	50' to 600'	8	6.1
I-1E	50	5	1,500	1,415	50' to 600'	10	7.0
I-1F	50	5	1,500	1,415	50' to 600'	12	7.9
Residential Property to the South							
I-2B	800	8	1,495	1,410	50' to 1,800'	0	0.0
I-2C	800	8	1,495	1,410	50' to 1,800'	6	3.1
I-2D	800	8	1,495	1,410	50' to 1,800'	8	4.3
I-2E	800	8	1,495	1,410	50' to 1,800'	10	5.3
I-2F	800	8	1,495	1,410	50' to 1,800'	12	6.0
Campsite, 3,500 Feet From The Event Area							
I-3B	3,500	40	1,440	1,440	300' to 1,600'	0	0.0
I-3C	3,500	40	1,440	1,440	300' to 1,600'	6	3.7
I-3D	3,500	40	1,440	1,440	300' to 1,600'	10	3.7
I-3E	3,500	40	1,440	1,440	300' to 1,600'	14	3.7
I-3F	3,500	40	1,440	1,440	300' to 1,600'	18	3.7
I-3G	3,500	40	1,440	1,440	300' to 1,600'	22	3.7

Suggested Noise Reduction Measures

Although onsite simulations and sound testing have shown that the OHVRA can be developed and operated without exceeding either the noise design criteria or State Noise Standards, area residents are understandably concerned. Even current ambient sound levels have given rise to annoyance (Genereux, 1997). The DNR is committed to meeting all applicable noise, dust and air quality standards. Careful trail planning, design, engineering and construction should help minimize noise complaints. Additional measures that should be considered include:

a) Limit the number and type of special events held at this facility;
b) Gradually reduce permitted vehicle noise levels as new machines become quieter;
c) Conduct field checks to supplement gate inspections of required noise suppression equipment;
d) Limit hours of operation, including temporary closure during unfavorable meteorological conditions;

[13] All noise barrier computations are performed using one-third octave band sound levels of a representative OHV mix. This data was obtained at the Hollister Hills State Vehicular Recreation Area (Hollister, CA) under controlled conditions. For additional information regarding these conditions, refer to the noise inventory of sources for the proposed Iron Range OHVRA, dated February 1997.

e) Restrict or modify motorized activity in noise-sensitive areas (e.g., limit uphill travel, restrict ATV and motorcycle use in some areas, post speed limits and establish 'no acceleration' zones)
f) Install barriers, berms or vegetative buffers in areas where significant noise reductions can be achieved;
g) Visually screen trails to reduce line-of-sight sound propagation;
h) Concentrate competitive activities in the designated Special Events Area.

Management Approaches to Sound Reduction
The DNR will work with MPCA Staff to establish appropriate noise controls, monitoring protocol and vehicle testing procedures. Various measures will also be taken to increase user awareness of sound impacts. These measures range from providing technical advice to conducting spot checks to inspect vehicles for compliance with Minnesota's 99dB(A) OHV noise standard. Sound testing of competition and spectator vehicles at organized events is a high-profile way to sensitize riders to the importance of noise control. Set up properly, 2-3 people can "screen" hundreds of vehicles in a short period of time. Vehicles passing the test should have stickers affixed to their front number plate. Vehicles that fail should be directed to undergo official sound testing at the front gate where the test procedure is more sophisticated, more standardized (i.e., model-specific RPM check), and much more accurate. Vehicles failing this test, should be given the opportunity to comply by repacking the muffler (a 15-minute job) before citing the operator for non-compliance and denying riding privileges.

Fugitive Dust[14]
Abrasion of the soil due to vehicular travel over dry gravel surfaces will release airborne dust. While not a health threat, the TSP portion (including PM10) can be a nuisance and it is subject to state (but not federal) ambient air quality standards. Fugitive dust will be controlled by watering problem areas and via periodic applications of Calcium Chloride.[15] The suggested application rate for dust control is 1/3 gallon (or 3.7 lbs.) of 38% liquid solution of calcium chloride/yard^2, or applied as a powder 77% calcium chloride by weight, the rate is 1.8 lbs/yard^2. Local climatic conditions will further act to dissipate and dilute offending dust and vehicle emissions.

The DNR acknowledges the risks associated with the use of calcium chloride. Calcium chloride will be used only when and where watering proves ineffective, and it will not be used adjacent to water bodies or steep slopes that drain into lakes, rivers or streams. All appropriate precautions will be taken to prevent the contamination of aquatic systems. Chemical use will be closely monitored subject to MN/DOT application guidelines and MPCA regulatory authority. The DNR will explore the use of environmentally acceptable dust control alternatives.

According to the EPA Report entitled: *"Control of Open Fugitive Dust Sources", Number EPA-450/3-88-008,* up to an 80 percent efficiency can be achieved with watering alone if the road or trail are watered at the rate of 1 liter/square meter of surface area twice per day from May through September on days without rainfall. Further, it states that fugitive dust emissions from cover material stockpiles, and active stockpiles can be reduced by 50-70 percent using windbreaks. The 'windbreak' (e.g., fence or vegetation) should be located three pile heights upwind from the base of the pile to reduce wind velocities, and be about 50 percent porous, with a height equal to the pile height, and a length equal to the pile base. A similar windbreak placed atop a large pile or the working face of the pile can also prove effective in reducing airborne dust.

Airborne Dust & Aesbestos - Mesothelioma & Silicosis
Some Gilbert Area residents allege that dust generated by OHVRA operations will prove dangerous to their health, due in large part to the aebestos content of some Iron Range soils. They cite over 40 cases of mesothelioma that have been detected in recent years in Northeastern Minnesota, a rate roughly 70 percent higher than the rest of the state. This rare, incurable cancer is almost always caused by breathing asbestos, even minute quantities of asbestos, usually in the workplace. Although mesolthelioma is a highly malignant cancer, it is also extremely rare, striking about 2,300 American men a year. Researchers believe that microscopic needle-like asbestos fibers that pass through lung tissue are ultimately responsible for the tumors that grow in the chest lining or abdomen. Doctors

[14] Fugitive dust is emitted into the air from open sources, as opposed to being released in a confined flow stream.
[15] Calcium chloride is a relatively non-toxic substance commonly used for dust control. In water, it disassociates into calcium and chloride ions. Although high levels of chloride in water can be toxic to fish, normal application rates, combined with planned riparian area setbacks, should prevent problems associated with its' use. Use will be in accordance with MN/DOT application guidelines, thereby minimizing the potential for adverse effects.

don't know how much asbestos is necessary to trigger this response, or whether physical or chemical properties of the fibers are to blame.

The disease takes 40 to 50 years to develop, making it extremely difficult to track. Minnesota's cancer surveillance system records only those cancers that occur in persons who live in Minnesota, not those who have retired and moved away, making an accurate assessment still more difficult. Because the mining industry is the region's largest employer, and because asbestos-like fibers have been found in some Iron Range soils, the mining industry remains the focus of those seeking to explain the high rate of mesolthelioma. OHVRA area soil types and rock formations are not thought to contain asbestos.

As early as 1985, Iron Range doctors notified the Minnesota Health Department of x-rays that seemed to show a high incidence of asbestos-related lung diseases among area men and women. Cancer statistics gathered by Health Department officials also reinforced concerns about an asbestos risk in the region. A blue-ribbon panel of environmental epidemiologists, appointed by then Governor Perpich, agreed that added research was needed and urged the state to pinpoint the source of the deadly fibers. The panel concluded that the exposures most likely occurred in the workplace. After more than a decade of inaction, research has recently begun on the incidence of mesolthelioma on Minnesota's Iron Range.

Minnesotaite

International mineralologist Tibor Zoltai believes that the fibers of 'minnesotaite', a mineral found in thin slabs primarily on the western end of the Mesabi Iron Range, may pose many of the same health hazards as commercial asbestos. Zoltai, who served on the expert panel that explored lung disease on the Iron Range, urges that biological studies be conducted on the mineral to determine its long-term effects. He deems the mineral "very suspicious". So far, however, no scientific studies have been conducted.

Although minnesotaite does possess the same needle-like microscopic fibers as asbestos, this does not necessarily mean that it poses the same threat to those who inhale it. Health Department examinations of minnesotaite in 1986 failed to show the long, needle-like fibers similar to those contained in commercial asbestos-like materials. Moreover, air samples taken during the 1970's and 1980's in cities across the Iron Range showed no dangerous levels of either minnesotaite or other asbestos-like fibers. In fact, overall exposure levels to asbestos were found to be higher in the Minneapolis-St. Paul Metropolitan Area than in any city on the range. However, state and federal officials admit that they did not search for minnesotaite in any form - just those needle-like microscopic fibers deemed long enough to be 'asbestiform'. Only asbestiform fibers are regulated by the MPCA. This means that shorter, wider fibers were not reported. Consequently, no one is certain whether the mineral poses a health risk, and exposures continue to occur.

Silicosis

Concern was also voiced during the planning process regarding the potential for 'silicosis', a dangerous respiratory condition arising from the inhalation of silica fibers, typically from airborne dust. Although the soils underlying the OHVRA do contain silica, the Gilbert Mine was a 'natural ore facility' which does not contain the very fine silica residue that taconite processing produces as a by-product. Taconite tailings basins and gravel pits are much more troublesome in this regard. With appropriate dust control, the potential for airborne silica particles will be minimized and the risk for increased incidence of silicosis will be insignificant from OHVRA operations.

Dust Emission Controls

Precise calculation of short-term mobile dust and exhaust emissions requires data regarding the number of vehicles expected at the site, their fuel consumption rate, type of fuel, travel distance to and from the site, and precise duration of operation. Short-term impacts are not considered to be of major significance over the life of the project. Longer-term mobile emissions will result from participant and spectator travel to and from the site, from competitive special events, and from daily trail riding. Again, precise emissions data are difficult to calculate or predict.

1. **Intensive Use Areas:** Mobile emissions are difficult to calculate. They depend upon the length and condition of the track, the number of competitors, the number of laps per rider per day, and the type of vehicle engine. For many events, meaningful average values cannot be calculated because the variance is too great. Irrigation

can minimize dust associated with scheduled events. The track surface can also be amended, treated with soil binders, or covered with hay or mulch to limit wind-driven dust.

2. **Internal Access Road.** Mobile emissions from the main access road are expected to be substantial. Measures to encourage traffic flow and hard-surfacing this road will help to reduce air quality and dust effects.

3. **Parking Areas.** Parking areas should be surfaced, mulched or treated to limit dust. Speed limits and traffic control can also help minimize air quality effects.

4. **Trail Areas.** Depending upon soil moisture conditions, trail riding may also generate fugitive dust. Problem areas should be treated to minimize dust generated along the secondary trails system. Watering is especially beneficial on dry, windy days, and during heavy-use periods.

Parking areas, building sites and high-activity areas will be covered with clay soils where necessary to stabilize and compact unsuitable (fine tailings) soils. Clay bearing soils suited for this purpose are located onsite, notably in Section 36 near existing gravel mining lease areas. The dust properties of proposed cover material are not unlike those on the remainder of the site. Dust control is possible by watering and through periodic application of calcium chloride. Environmentally friendly dust suppressants will be explored in cooperation with area mining companies who have done considerable research into dust control methods. Portions of both the training areas and the event area will be covered with dry, loose sand prior to competitions to add to their level of difficulty. This is not expected to result in significantly higher levels of fugitive dust emanating from the OHVRA.

Dust Monitoring and Control Plan

A dust monitoring and control plan will be developed in consultation with MPCA prior to operation. The plan should discuss dust suppression equipment, materials and procedures, as well as conditions that might prompt limitations on OHV activity. Dust control during special events is of particular concern. Long-term monitoring of dust in relation to ambient meteorological conditions is recommended. Detailed meteorological data such as rain-fall distribution, rainfall intensity, wind, and temperature patterns is critical for dust control purposes.. A fully-functional weather station should be installed and monitored on a daily basis by OHVRA Staff. At a minimum, the station should include a recording tipping-bucket rain gauge, a recording hygrothermograph (temperature and humidity) and a recording anemometer (wind). A log should be kept of daily weather observations.

8. CONSTRUCTION EFFECTS

Construction Standards & Environmental Safeguards

Construction effects are, by definition, transient and temporary. Unless properly executed, however, construction effects can be serious and lasting reminders of past mistakes or poor judgement. Difficult terrain and special designs will require close supervision of even the most experienced work crews. Careful design, professional engineering and proper construction can minimize environmental problems and add to the quality and longevity of roads and trails.

Grading, Clearing and Excavating

Grading and excavating should be kept to a minimum in order to reduce soil erosion and potential drainage problems. A maximum of 125-150 acres will be graded or excavated resulting in approximately 75,000-100,000 cubic yards of soils (in total) being moved onsite during Phase I construction. Some vegetative clearing may be required to create proper cut and fill slopes, and to improve trail safety or aesthetics. Trail corridors will be cleared of trees, brush, stumps, rocks and roots. However, Trails will be kept as primitive and rustic in appearance as possible. Overbuilding can destroy OHV trails. Difficult terrain and special designs will require close supervision of even experienced work crews. **Mechanized construction equipment may not be appropriate for some intermediate and advanced trails.** Corridor width and treadway integrity are important determinants in selecting the appropriate tools for the job. *Figure 12* shows a typical trail cross-section.

Construction debris will be set back from trails so as not to be visible nor create a safety hazard. Excess materials will be deposited at designated disposal sites, buried and revegetated. Rocks and soil disturbed during construction

will be used whenever possible in trail construction. Soil erosion will be controlled by using appropriate trail design, location, construction and drainage techniques. *Water Quality and Wetlands Best Management Practices (BMP's)* will also be observed during construction and operations of the OHVRA.

Surface Water Control

Trail construction and use invariably affect natural water flow. Surface water control is critical to minimizing water movement and controlling soil erosion. Techniques proven effective in reducing surface water movement include the installation of water bars, check dams, retainer bars, grade or drain dips, trail surface outsloping, silt cloths, and rock barriers or berms. A puncheon or boardwalk may also be constructed to cross saturated or low-lying areas without disturbing natural water flow. Each technique is most effective under certain conditions, and then only if properly installed and regularly maintained. Sometimes these methods must also be coupled with upslope drainage ditches or downstream catch basins in order to control soil sediment. Factors to be considered when selecting a specific technique include the trail grade or slope, anticipated traffic, soil type, annual precipitation (or snowmelt) and the availability of materials and trained personnel. Careful trail planning and design can help avoid wet areas altogether, thereby greatly reducing both trail construction and long-term maintenance costs.

Where roads or trails follow lakes, streams, rivers or ponds, the City of Gilbert Shoreland Zoning Ordinance will be observed (i.e., setbacks, buffers and vegetative screening) and a suitable distance maintained between water bodies and trails to protect water quality. Buffer strip width will be determined by the amount and type of vegetation, and by the slope and trail grade. Trail-related support facilities (e.g., picnic and parking areas) must also comply with shoreland protection rules. Erosion control measures will be employed as appropriate (e.g., hay bales, check dams, seeding and mulching, silt fences, sediment ponds, etc.), along all roads and trails, to limit water movement, erosion, sedimentation and possible degradation of surface waters. Runoff will be diverted into heavily vegetated areas. Cut banks will be revegetated with a native seed mix beneficial to wildlife. Roads and trails will be monitored and regularly maintained to prevent unacceptable levels of soil erosion, compaction or rutting.

CHAPTER VI: PROJECT IMPLEMENTATION

A. PERMITS AND APPROVALS

Permits and approvals include virtually any discretionary action that any unit of government takes regarding a particular project which entitles the project proposer to proceed, including financial subsides or other assistance. MN Stat., Sction 116D.04, Subd. 2b declares that if an EAW or EIS is required for a project, the project may not begin and no governmental decisions may be made to grant a permit or otherwise approve the project, until:

1. A petition is dismissed;
2. A negative declaration on the need for an EIS has been issued;
3. An EIS has been determined adequate; or
4. A variance has been granted by the Environmental Quality Board.

Environmental review is intended to foster informed decision making. This process would be subverted if such decisions were rendered before the process had been completed. Consequently, project proposers are prohibited from taking **any** action, including the acquisition of property, which may prejudice the ultimate decision on the project. An action is considered to 'prejudice' the outcome if it tends to limit alternatives or mitigative measures, or predetermine that subsequent development will occur. In other words, no action may be taken which makes one option or study alternative less viable, or less likely to be chosen than it would have been had the action not taken place. Table 11 summarizes permits needed to begin construction of the OHVRA.

Table 11. Required construction permits and local government approvals.

Government Agency	Type of Approval or Permit	Status
Federal		
U.S. Army Corps of Engineers	Section 404 Permit (GP 18 - Wetlands)	Not Applied For
State		
Department of Natural Resources	Protected Waters Permit	Not applied for
	License to Cross Public Waters	Not applied for
	Utility Crossing License	Not applied for
	Water Appropriation Permit	Not applied for
	Endangered & Threatened Species (Taking) Permit	Consultation begun
Pollution Control Agency	401 Water Quality Certification	Not applied for
	National Pollutant Discharge Elimination System	Application pending
State Historic Preservation Office	Historic Clearance/Section 106 MOA	Review completed
Board of Water and Soil Resources	Wetland Protection and Delineation	Consultation begun
St. Louis County		
Soil & Water Conservation District	MN Wetland Conservation Act Permitting	Not applied for
	Erosion & Sediment Control Plan	Consultation begun
Local		
City of Gilbert	City Council Review & Approval	Consultation begun
	Planning and Zoning Review & Approval	Not yet submitted
	Wetland Replacement Review	Not yet submitted
	Utility and Permits	Not applied for

B. DEVELOPMENT PRIORITIES AND PHASING

1. INITIAL OPERATIONS, YEARS 1-2

In phasing OHVRA development, it is critical to undertake those initial improvements necessary to help build the visitor base by encouraging visitors to travel to Gilbert. Long-distance travelers must be assured of a safe, enjoyable

experience. Infrastructure improvements should seek to provide consistently high-quality off-road recreational experiences. Phase I development should include, but not be limited to the following:

- ✓ Backbone trail construction.
- ✓ Initial secondary trail structure.
- ✓ Signing, fencing, sound berms and barriers.
- ✓ Access road signing, improvements (off Hwy 135) and bridge construction.
- ✓ Campground OHV trail.
- ✓ Gatehouse, clubhouse and administrative support buildings.
- ✓ Parking, staging and competitive event areas.
- ✓ Restrooms and sanitary facilities.
- ✓ Day-Use and picnic sites.
- ✓ Sedimentation basins and erosion control structures.
- ✓ Vegetative filter strips.
- ✓ Interpretive display (at entrance)
- ✓ Vehicle wash stations.

2. PHASE II DEVELOPMENT, YEARS 3-5

Subsequent development will depend, in part, on trends in visitor numbers and overall visitor satisfaction. Assuming that initial estimates prove substantially correct, Phase II development should focus on providing additional amenities and attractions such as the following:

- ✓ Added secondary trail miles.
- ✓ Additional interpretive displays and materials
- ✓ Special events area lighting.
- ✓ Expanded training course offerings and new curriculum materials.
- ✓ Permanent concessions buildings. Drinking water and rest rooms.
- ✓ Temporary vehicle storage building.
- ✓ Non-motorized trails and added day-use areas.
- ✓ Pedestrian bridge and non-motorized trails accessing Lake Ore-be-gone.
- ✓ Culvert underpass (for official use only) under DM&IR railroad tracks.
- ✓ Dakota Avenue main entrance.
- ✓ Shade ramadas at day-use sites.

C. LAND ACQUISITION AND LINKS TO OTHER OHV FACILITIES

1. FUTURE LAND ACQUISITION

Off-roaders' prefer large land areas with substantial elevation change and rugged topography. From a management standpoint, however, a mix of both flat and rugged terrain is desirable in order to accommodate parking, staging and competitive events, while buffering motorized activity and containing vehicle noise and dust. Buffers are critical given the proximity to Gilbert and to occupied dwellings. To the extent that the acquisition of adjacent properties limits (especially residential) development of those properties, such acquisitions should be actively explored. Expanding the OHVRA to add new features, or to provide access to new destinations or attractions, will help boost visitation and extend the average length of stay.

Evaluating Proposed Acquisitions

Factors to be considered when evaluating purchase options for surrounding lands include location, topography, natural features, zoning designation and adjacent land-use. Purchase will be from willing sellers only, and then only in response to a specific, compelling need to expand the OHVRA or secure links to other riding areas. Although the DNR may eventually wish to purchase certain properties surrounding the OHVRA, principally to serve as buffers, there is no requirement to do so. The courts have generally agreed with DNR that the agency cannot be compelled to purchase private properties from persons unhappy with the operation of a nearby public recreation facility.

A real estate appraisal will be conducted for any potential additions to the OHVRA. Checks for environmental contamination (e.g., unsealed wells) will also be conducted, as will detailed abstract research to determine the validity of the title and the existance of any liens or covenants. Stockpile ownership, if any, should also be traced and all owners of record contacted regarding their real or personal property interests in the parcel.

Adjacent Property Owner Involvement

Adjacent property owners should be notified and consulted regarding possible additions to the OHVRA. The Local Area Advisory Committee is the appropriate forum for public discussion of acquisition proposals. Public concerns should be evaluated along with other relevant data in deciding whether to acquire specific parcels to add to the OHVRA. If approved, statutes authorizing the OHVRA would need to be amended to relect any boundary changes.

2. LINKS TO OTHER OHV FACILITIES

Legislation creating the Iron Range OHVRA also called for a "Feasibility Study" to identify additional sites potentially suitable for OHV use so as to expand the OHVRA and link it to other OHV trails and riding areas. This process began in Fall 1997 when a total of eight potential sites on the Mesabi Range were identified *(Table 13)*. The sites were selected based upon their size, topography, accessibility, land ownership, mining history and mineral potential. This preliminary list was quickly narrowed to six, then by Spring 1998, it was narrowed to three sites located near the cities of Virginia, Chisholm and Coleraine (sites #2, #4 and #8). These sites remain under active consideration.

Evaluation of future OHV Sites will be done in a public manner, and legislation authorizing one or both sites would be required in order to establish a second motorsports park. Detailed natural resource inventory data is not yet available on the other sites, nor have negotiations with surface landowners begun. Interest in pursuing discussions has, however, been expressed by the Mayors and City Councils of Virginia, Chisholm and Coleraine.

D. OPERATIONS & MAINTENANCE BUDGET

Table 12. Estimated Annual Operation & Maintenance Costs - Summary Table

CATEGORY	OPERATIONS	MAINTENANCE	TOTAL COST
SUPPLIES	$2,000	$1,000	$3,000
PERSONNEL	$75,000	$35,000	$110,000
UTILITIES	$10,000	- 0 -	$10,000
EQUIPMENT	$2,000	$8,000	$10,000
CONTRACT LABOR	$5,000	- 0 -	$5,000
TOTALS	$94,000	$44,000	$138,000

P POSED
IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA

Table 13. SEARCH FOR ADDITIONAL SITES -- PRELIMINARY RESULTS[1]

I.D.	Site Name/Location	County	Size (Acres)	Surface Ownership	DNR Team Remarks [Based upon preliminary review of 12/05/97]
1.	**Canton / Biwabik** Sect. 3 of T58N R16W & S1/2 of Sect. 34 T59N R16W	St. Louis	1,000+	USX	Greater % disturbed land than other sites. Expansion possible, including links to USFS land to North. Approx. 2-3 miles from Giant's Ridge. LTV considering new pit nearby. Surface water setbacks needed. Canton Pit is drinking water source for Biwabik. Stockpiles may block line-of-site noise from Biwabik. High ground, continental divide. Good topography and natural relief. Area economy tied to tourism. Was considered previously for OHV use.
2.	**Missabe-Minnewas / Virginia** Sect. 3, 9, 10, N1/2 of Sect. 15 & 16 of T58N R17W	St. Louis	2,500+	USX, Inland Steel, State & County Tax-Forfeit	Part of 'Virginia Horn', mining exploration to south for gold, copper, nickel. Expansion possible. Steep slopes, 200-300' pit walls. Missabe Mtn Pit provides water supply for City of Virginia. Active sludge disposal, sanitary landfill and gravel leases. Peregrine Falcon release site. Few occupied residences. Site not considered previously.
3.	**Judson / Buhl** Sect. 29, 30, 31, 32 of T58N R19W	St. Louis	2,000+	USX, State, County Tax-Forfeit	Low rail dumps, little relief. Contains low/wet areas. Mesabi Trail runs NW of site. Public Hearings held Summer 97 regarding sludge disposal on this site - currently underway. Private residences to East and West. Hwy 169 underpass on West edge of site. City of Buhl may have future development plans here.
4.	**Douglas/Duncan / Chisholm** Sect. 33, 34, 35 of T58N R20W	St. Louis	1,200+	USX, County Tax-Forfeit, State Land to East	Adjacent to Ironworld interpretive areas and proposed St. Louis County Fairgrounds relocation. Heavily used by OHV's currently. Race track nearby, possibility of adding Motocross. Mesabi Trail passes through Southern portion, underpass under Hwy 169. Good topography. Subsidence activity ('sinkholes') resulting from former underground mining (Godfrey Mine). Hibbing Taconite maintains a haul road thru area - they intend to use it 5-10 years from now.
5.	**East Hibbing / Hibbing** Sect. 8, W1/2 of SW of Sect. 9, N1/2 of Sect 17 of T57N R20W	St. Louis	1,000	Hanna Mining, State, County Tax-Forfeited	Smallest site, little opportunity for expansion or linkage. May be suitable for single use (e.g., motocross events). Burton Subdivision adjacent. Racetrack adjacent; operates Sat-Sun during summer. Good relief, features large, flat and open tailings basins. Sludge disposal NE of Sect. 17. Airplane crash site may be locally significant.
6.	**West Hibbing / Hibbing** E1/2 of Sect. 22, 23, N1/2 of NE of Sect 27 of T57N R21W	St. Louis	1,000+	USX, City of Hibbing, County Tax-Forfeited	Little opportunity for expansion, bordered by roads. Some relief. State black dirt leases near Kelly Lake. Morton Pit pumps into Kelly Lake. Small peat mining operation nearby. Buried landfills and active gravel mining in area. Wetlands were drained for peat mining. US Steel stockpiles adjacent; may be able to expand into this area. Mesabi Trail runs thru site adjacent to Hwy 169. Shooting Sports facility on site. Popular deer hunting area.
7.	**Hill-Trumbull / Calumet** S1/2 of SE of Sect. 7, S1/2 of Sect. 8, S1/2 of Sect. 9 of T56N R23W	Itasca	1,500+	Great Northern Iron Ore Properties, County tax-forfeited (formerly Hanna Mining)	Good relief and expansion potential. Very hilly. Could link to Hill Annex State Park and use park as access/staging area. Furthest site from people and occupied residences. Road access limited, may need to use Hill Road or Hanna Minings old 'Range Road'. Wetlands in former tailings ponds (protected waters). Heron Rookery to East. Currently being logged (clearcut) by Blandin Paper Co. Community of Marble may be supportive - strong outdoor recreation orientation. Marble/Calumet visually buffered by large stockpiles. Swan and Snowball lakes are located nearby.
8.	**Buckeye / Coleraine** Sect. 25, N1/2 of Sect. 36 of T56N R25W & Sect. 30 of T56N R24W	Itasca	1,500+	County Tax-Forfeit (formerly Hanna Mining)	Most westerly site. Close to Hill-Trumbull. Heavily disturbed, varied terrain. Occupied residences within 1 mile to North/West. Shooting Sports facility adjacent. Heavily used by OHV's and hunters presently. DNR has stocked rainbow and lake trout in Buckeye Lake, which also has native smelt population. Possible deer yard in area.

Source: *MN DNR, Trails & Waterways, December 1997*

[1] This table summarizes preliminary findings from a broad-based search of Minnesota's Mesabi Iron Range for sites potentially suitable for public OHV use. This search focused on inactive (former) mineland sites larger than 1,000 acres exhibiting a desirable mix of topography, hydrology, vegetation and road access. Links to recreational trails or other travel destinations were also sought. Begun in September 1997, this DNR search relied upon existing data and maps, including a brief visit to and fly-over of each candidate site. The list is not necessarily final nor exhaustive. Landowners have not yet been contacted. **Interdisciplinary team comments do not necessarily reflect the DNR's official departmental position.**

E. CAPITAL BUDGET REQUIREMENTS

Table 14. Cost Estimates[16] for Phase I Construction - Summary Table

1. Utilities and Infrastructure		**$1,180,000**
A. Plumbing / Well Drilling	$450,000	
B. Electricity	$5,000	
C. Perimeter Fencing, (34,500 lineal feet)	$125,000	
D. Berms, Buffers and Barriers	$205,000	
E. Primary Access Bridge	$350,000	
F. General Parking / Staging Area	$35,000	
G. Vehicle Wash Area(s)	$10,000	
2. Facility Entrance/Access Roads		**$284,500**
A. Access Road Improvements (off TH 135)	$10,000	
B. Campground Trail Construction	$164,500	
C. Emergency Access Road Improvements	$75,000	
D. Heavy Duty Entry Gate	$15,000	
E. Center Island / Curbing	$10,000	
F. Entry Signing / Lighting	$10,000	
3. Administrative Support Structure		**$320,000**
A. Contact Station / Gatehouse	$100,000	
B. Administration Building	$50,000	
C. Storage/Maintenance Building	$50,000	
D. Restrooms/Sanitary Facilities	$100,000	
E. Exterior Lighting & Security	$20,000	
4. Safety Training & Community Support Facilities		**$246,500**
A. Classroom / Interpretive Center	$150,000	
B. Motorcycle/ATV Storage Facility	$35,000	
C. Training Area Improvements	$39,000	
D. Day-Use / Picnic Area Development	$7,000	
E. Outdoor Pavilion / Parking	$15,500	
5. Trail System		**$89,500**
A. Backbone Trail System Development / Improvement	$50,000	
B. Secondary Trail Development	$25,000	
C. Staging/Scramble Area Improvements	$4,500	
D. Drainage Structures	$5,000	
E. Trail Signing	$5,000	
6. Special Event Areas		**$111,000**
A. Multi-Purpose Events Area	$75,000	
B. Sand / Mud Drag Area Development	$18,000	
C. Obstacle Course	$8,000	
D. Hill Climb Area	$5,000	
E. Spectator Parking, Signing and Fencing	$5,000	
TOTAL DEVELOPMENT COSTS (Phase I)		**$2,231,500**

[16] Preliminary construction estimates were developed by Trails & Waterways Regional and Area Staff in consultation with site design consultants. Estimates are based upon implementation of the Preferred Design Plan given current prices (1998) and development plans. Actual development costs may be more or less than estimated.

F. PLAN REVISION AND MODIFICATION

This recreation area master plan documents the outcome of a collaborative public planning exercise. As such, it represents, in essence, a negotiated management agreement with those who participated in its development. Consequently, major changes should not be made to this document without due consideration and notification of potentially affected parties. Minor plan revisions (e.g., staffing changes, minor site modifications) can generally be accomplished by DNR Trails & Waterways with simple public notice. Major amendments, however, meeting any of the criteria listed below, should follow the formal *Plan Amendment Process* to ensure consistency of statewide direction. Requests for plan modifications or amendments should be directed to the DNR Trails & Waterways Tower Area Supervisor.

If the proposed change meets **either** of the following criteria, it **must** be approved through the formal plan amendment process as outlined below:

1. The proposed change alters the facility's mission, vision, goals or management objectives; and/or
2. The proposed change is controversial among local elected officials, the Citizen's Advisory Committee, OHV groups, park visitors, area residents and/or within DNR or other state agencies.

Master Plan Amendment Process

1. Review the proposed amendment at the DNR Area and Regional levels. Determine which stakeholders will be affected and how their concerns can be addressed. Notify and consult affected stakeholders. Forward suggested solutions to the DNR Central Office Trail Recreation Supervisor for approval.

2. Internal DNR issues should be resolved by staff and forwarded to Division Directors for final resolution. Division heads should indicate whether the issue will require regional or area team involvement, or if additional Central Office review or approvals are necessary. Inter-agency issues will be resolved by the Commissioner's Office.

3. Locally controversial changes shall be presented at public meetings (of the Local Area Advisory Committee) and/or at Open House forums in order to collect public opinion on proposed changes. Following the public session(s), the Trails & Waterways Director will decide whether to pursue the proposed change(s), or how these changes might be modified to better reflect local public sentiment.

Minor Plan Revisions

Minor revisions that generally follow the intent of the Master Plan can be made at the discretion of the Facility Manager with approval from the Trails & Waterways Tower Area Supervisor. In some cases, stakeholders should be notified. Relatively minor modifications, such as shifting a proposed trail or building slightly due to soils or site limitations, are not uncommon. Sensitive plants or historic features must also be avoided, if found, to protect and preserve their integrity. Conceptual plans preserve mangement flexibility. Only major changes in management direction should require formal plan modification. All updates, revisions and modifications to this master plan should be done by Trails & Waterways Planning Staff to ensure consistency with statewide direction.

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GLOSSARY

A-Weighted Sound Level. The sound level in decibels as measured on a sound level meter using the A-weighted scale. The level so read is designated dB(A).

Adopt-a-Trail. A program under which trail riding clubs "adopt" recreational trails, providing volunteer work parties at periodic intervals. Though no special trail use privileges are granted, the agency generally acknowledges that a trail has been "adopted" by the volunteer group via signage and/or other publicity.

Aesthetics. The characteristics of a place or an object, including buildings and structures, that contribute to its perceived visual quality.

Alignment. The configuration of the trail in a horizontal plane, including the bends, curves and tangents of the path. The more crooked the route, the more effort and skill it takes to follow. A windy, twisting trail is generally preferable to a straight, featureless trail.

Ambient Noise Level. The composite of the hourly noise level from existing sources when OHV activity is **not** occurring.

Aquifer. The zone below the ground's surface capable of holding water, as from a well.

ARMCA. Acronym for Amateur Rider's Motorcyclist Association.

Aspect. The particular direction that a site faces. This can influence moisture retention and insolation.

ATV (All Terrain Vehicle). Motorized, floatation-tired vehicles with at least three, but no more than six low-pressure tires, with an engine displacement of less than 800 cubic centimeters and a total dry weight of less than 800 pounds. ATVs with a total dry weight of greater than 800 lbs are classified as ORVs. *[M.S. Chapt. 84.92]*

ATVAM. Acronym for All-Terrain Vehicle Association of Minnesota.

Average Hourly Exceedance Noise Level L_{50}. The 50th percentile noise exceedance level (L_{50}) as measured by use of a sound level meter with analysis capability when operated on the quick response setting.

Backslope. The angle of the back wall of a trail excavated into a hillside.

Berm. An earthen embankment used to deflect sound or divert surface water flows.

Buffer or Buffer Zone. An area intended to provide a physical separation between competing or conflicting land uses.

Carrying Capacity. *1) Biological Carrying Capacity* - The capability of an ecological system to sustain a living population. *2) Trail Carrying Capacity* - Either the physical (i.e., soils, vegetation) or social capacity (i.e., crowding) of the trail to sustain recreational vehicle use without impairing either the trail or the user's recreational experience. Usually stated in terms of numbers of visitors per mile per day.

Centering. Constructing a trail in a manner that encourages traffic to use the center portion of the trail.

Circulation. A component of a land use plan that identifies traffic patterns and the general network of roads, trails, transitways, and pedestrian travel routes.

Clearing. The corridor from which vegetation has been cleared. Generally, wider clearing distances provide for quicker, easier travel.

Climbing Turn. A turn of less than 180 degrees located on an uphill or downhill portion of a trail. See "Switchback."

Collector Ditch. A drainage structure that intercepts water flowing toward a trail and channels it underneath the trail through a culvert or puncheon.

Community Noise Equivalent Level (CNEL). A 24-hour energy equivalent level derived from measuring hourly energy equivalent sound levels, with weighing factors of five and ten dB(A) applied to the evening (7:00-10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) periods, respectively, to allow for increased sensitivity to noise during these hours.

Compatible. Capable of existing together without conflicts or ill effects.

Constraints. Impediments or drawbacks to development, such as unstable soils, steep slopes, lack of potable water, etc.

Control Point. An object or obstacle influencing trail location, direction or use.

Cumulative Period. An additive period of time composed of individual time segments which may be continuous or interrupted.

Day-night Sound Level. A 24-hour energy equivalent level derived from the measurement of hourly energy equivalent sound levels, with a weighting of 10 dB(A) applied to the nighttime (10:00 p.m. to 7:00 a.m.) period.

dB(A. Abbreviation for "A-weighted" sound pressure level. Descriptor used to represent a combination of sound frequencies in a manner similar to that of the human ear.

Decibel. A unit for measuring the amplitude of sound, equal to 20 times the logarithm (base 10) of the ratio of the pressure of the sound to the reference pressure, which is 20 miropascals.

Deflection Angle. The angle of deviation from a straight line.

Detention (or Catch) Basin. An impoundment facility constructed to capture surface water runoff and dissolved soil particles. Stormwater temporarily stored in detention basins can be gradually released through an outlet structure at a rate not exceeding the carrying capacity of the downstream channels, or water can be detained for evaporation or percolation.

Drain Dip. An erosion-control technique that reverses the trail grade for 15-20 feet before returning to the prevailing grade. The abrupt change in grade forces water to run off the trail surface rather than gaining additional velocity.

Easement. The legal right to access and/or use real property owned by another for specific purposes.

Erosion. (1) The loosening and transport of rock and soil debris by wind, rain, or running water. (2) The gradual wearing away of the upper layers of the earth.

Exceedance Noise Level. The statistical noise level that characterizes the cumulative distribution of the noise as measured over a one hour period. Typically measured as L_{10} or L_{50} measurements, or that sound level exceeded for 10% or 50% of an hour, respectively.

Exposure. The relative hazard encountered on a particular trail. Degree of exposure derives from various factors including a combination of alignment, grade, clearing, tread width, tread surface, sideslope, obstacles, and degree of remoteness or isolation.

Flagline. A series of surveyor's flags or stakes indicating the intended course of a trail prior to actual construction.

Fugitive Dust. Dust emissions from unconfined areas that cannot be reasonably contained, confined or directed through use of a stack, vent or other device.

Full Bench. A trail resting entirely on an excavation into a steep sideslope; no fill is used to support the trail.

Goal. A broad, timeless statement of desired conditions.

Grade. The slope of the trail in the direction of travel.

Greywater Facilities. Greywater septic systems are systems that treat domestic sewage which does not contain toilet wastes (or "blackwater").

Guidelines. General statements outlining the implementation of policy direction.

Hourly Exceedance Noise Level (L_{50}). The 50th percentile noise exceedance level as measured using a sound level meter with analysis capability. The measurement is obtained using the quick response setting on the sound level meter.

Igneous. Pertaining to rocks deposited by either volcanic activity or by the cooling of molten rock below the earth's surface.

Impact. The net outcome or effect of any action or decision.

Infrastructure. Physical improvements including roads, trails, buildings, utilities and distribution systems. Typically refers to public and/or quasi-public facilities such as offices, schools, court houses, libraries and parks.

Inslope. Slopes facing toward the inside of the trail.

Level of Service (LOS). A scale that measures the operating capacity likely to be encountered on a trail or roadway, or at the intersection of roadways, based on a volume-to-capacity ratio, with levels ranging from A to F, with A representing the lowest volume-to-capacity ratio and F the highest level of service.

Level of Service A: Describes a relatively free flow of traffic, with little or no limitation on vehicle movement or speed.

Level of Service B: Describes a steady flow of traffic, with slight delays in vehicle movement and speed.

Level of Service C: Describes steady, high-volume flow of traffic, with significant limitations on movement and speed.

Level of Service D: Describes the level where traffic nears an unstable flow, in which there is limited freedom of movement. Queues develop and short delays occur.

Level of Service E: Describes traffic characterized by slow movement and momentary stoppages. This type of congestion is not uncommon during peak traffic hours.

Level of Service F: Describes very congested traffic with frequent stoppages. Indicates forced flow or stalled operation.

Loop Concept. The practice of designing trail systems so that key routes form loops, giving trail riders the ability to explore new areas, different trails without retracing their steps.

Maximum Noise Level. The maximum noise level that is displayed by the sound level meter when operated on slow or quick response.

Mechanical Toter. A piece of mechanized trail construction equipment used for hauling rocks and other bulky and/or heavy materials.

Meta-Sedimentary. Pertaining to sand, silt, gravel or clay whose physical and/or chemical characteristics have been changed by high pressure and/or high temperature. Meta-sedimentary rocks are generally of Precambrian origin and are 600+ million years old.

MN 4WD or MN 4x4. Acronym for the Minnesota Four-Wheel Drive Association. The term "4x4" refers to vehicles with four-wheel drive.

Natural Resource. A naturally occurring compound, structure or substance.

Noise. Perjorative term for unwelcome sound.

Objective. A specific, measurable statement of intent. An objective should be realistic, attainable and, where possible, should be both quantifiable and time-specific.

Obstacles. Physical objects which impede travel. Logs, large rocks, and open water are common obstacles that might impede travel.

Off-Site. Outside of the statutory borders of the designated OHVRA.

Off-Highway Motorcycle (OHM). Motorized two-wheel off-highway vehicles. OHM operators straddle a seat or saddle and have handlebars for steering. Street-legal motorcycles may be considered OHMs if used for off-highway operation on trails or natural terrain. *[M.S. Chap. 84.787]*

Off-Highway Vehicle (OHV). A motorized vehicle suited to off-road use. OHVs may or may not be street-legal and meet federal equipment and emissions standards, but must comply with established noise standards. A term used to describe motorcycles, three and four-wheeled all-terrain vehicles, and all-wheel drive cars or trucks.

Off-Road Vehicles (ORV). Motorized recreational vehicles capable of cross-country travel on natural terrain, such as 4x4 jeeps or trucks. Vehicles NOT considered ORVs (in MN) include snowmobiles, motorcycles, ATVs, aircraft or watercraft. Farm, logging, military, emergency, law enforcement, utility, trail grooming and special construction vehicles are NOT considered ORVs when used for their intended purpose. *[M.S. Chap. 84.797]*

Open Riding. Refers to expansive areas used by OHVs where vehicle use is not limited to designated roads and trails. Any portion of such an area may be used by OHVs at any time.

Outslope. Slope facing towards the outside of the trail.

Peak Hour. For a given road or trail, the daily 60-minute period during which traffic volume is the highest.

Pitch. An interim increase in the prevailing trail grade, used to avoid an obstacle, to redirect runoff, or to "catch up" with the intended grade.

Pleistocene. Geologic time period during which glaciers occupied North America (i.e., 10,000 - 2 million years ago)

Policy. An enduring statement of principle, direction or commitment to specified values or a specific course of action.

Positive Grade. Trail running uphill or upslope.

Precambrian. The geologic time period which ended 600 million years ago.

Prime Soils. Soils classified by the United States Department of Agriculture Soil Conservation Service as Class I or Class II (usually agricultural) soils.

Program. An action, activity, or strategy carried out in response to specific goals or objectives.

Recreational Motor Vehicle (RMV). A term used to describe all-terrain vehicles, off-highway motorcycles and off-road vehicles. (See ATV, ORV, OHM)

Right-of-way (ROW). A parcel of land legally owned, occupied or reserved for use by (typically) public agencies or by private utility companies.

Riparian. Referring to the complex ecology and vegetation of lowland, wetland or shoreland areas. Riparian area plants and trees are often dependent upon their roots reaching the shallow water table in these low-lying areas.

Rock Ballast. Crushed rock fill material used to form the trail bed.

Roll. A decrease in the prevailing grade of a trail, allowing the trail to be routed under an obstacle or meet a specified control point.

Scramble Areas - Generally flat, open and unobstucted areas for multi-directional OHV use and travel. Scramble areas are useful for training, vehicle testing and staging activities.

Sideslope. The slope of the ground at its extreme angle, usually perpendicular to the direction of travel. As the magnitude of the sideslope increases so does the perception of trail difficulty and rider exposure.

Slack. Temporarily increasing the prevailing grade of a climbing trail by several percent during layout. This permits planners to gradually return to the original grade to avoid obstacles or to help collect and channel runoff.

Slope. Land gradient described as the vertical rise divided by the horizontal run, as expressed in percent.

Slow Response of Sound Level Meter. The setting of the sound level meter for the slow response time as specified in American National Standards specification for sound level meters, S1.4-1971, or the most recent revision thereof.

Sound Level Meter. An instrument, including a microphone, an amplifier, an output device and/or meter, and frequency weighting settings for the measurement of sound levels.

Spark Arrester. A device constructed of non-flammable materials used for removing and retaining carbon and other flammable materials from the exhaust flow of an internal combustion engine.

Special Event. Organized OHV events or activities involving an OHV competition before a mix of competitors, sponsors and spectators.

Staging Area. A flat, open and level area where visitors park their (highway) vehicles and unload their OHVs and personal safety equipment for trail riding ad/or competition events.

Switchback. A sharp hillside turn, usually of about 180 degrees, intended to lessen the grade of a trail traveling up or down a steep slope.

Thru Traffic. Denoting vehicles whose destination is beyond its' immediate location.

Topography. The physical features and geology of the surface of the earth, including elevations and the position of both natural and man-made features.

Trail Bed. That portion of the trail consisting of the treadway and the subgrade beneath it.

Trail Bike. An off-road motorcycle distinguished by its' high fenders and side-exhaust system, knobby tires, and a compact design. Street-legal trail bikes are known as a 'dual-sport' motorcycles.

Trail Tread. That portion of a trail on which OHVs actually travel. Generally the same as 'Tread Surface' or 'Trail Treadway'.

Travelway. The trail corridor, including the trail tread and the cleared areas on either side of the centerline.

Tread Surface. The physical condition of the traveled portion of the trail. A tread becomes more difficult to ride as it becomes loose, rough, or slippery.

Turnpike. A tread-reinforcing technique used for crossing damp soils. It consists of poles or logs placed parallel to each other (and to the trail) with the trail tread built up between them. This results in a slightly elevated trail which still allows for natural water movement.

USGS Contour Map. Maps published by the United States Geological Survey, indicating topography, elevation and major man-made and natural features.

View Corridor. Natural or man-made lines that define the height, width and distance of human sightlines. Examples include mountains, valleys, ridgelines, lakes or rivers, forested areas, tall buildings, roads and trails, etc. These features attract and focus the viewer's attention.

Viewshed. That area within panoramic view from a defined observation point.

Watercourse. A natural or manmade channel through which water flows.

Watershed. That land area which drains into a main stream or river.

Wetlands. Transitional areas between terrestrial and aquatic systems where the water table is usually at or near the surface.

LIST OF APPENDICES

APPENDIX A
LEGISLATION & APPROPRIATIONS
IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA

MN LAWS 1996, CHAPTER 407

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Sect. 1. [ENVIRONMENT AND NATURAL RESOURCES APPROPRIATIONS.] The sums in the columns below are appropriated from the general fund, or another named fund, for the purposes specified to be available for the fiscal years indicated. FY 1996 appropriations are available for the fiscal years ending 06/30/96 and 06/30/97. Project funds were reappropriated in 1998 for use in FY 1998 & 1999, for the period ending June 30, 1999.

SUMMARY BY FUND

	1996	1997	TOTAL
Natural Resources	$1,350,000	-0-	$1,350,000
Taconite Environmental Protection	$750,000	-0-	$750,000
TOTAL APPROPRIATIONS	$2,100,000	-0-	$2,100,000

Sec. 3. [NATURAL RESOURCES, SUMMARY BY FUND] *(excerpted)*
(The sum of) $1,350,000 *(is appropriated)* in fiscal year 1996 is from the all-terrain vehicle account in the natural resources fund to plan, acquire, develop, and operate the Iron Range off-highway vehicle recreation area and to conduct the feasibility study, to be available until June 30, 1998. This appropriation is contingent on the city of Gilbert entering into an agreement to lease the city-owned land within the Iron Range off-highway vehicle recreation area to the state for $1 per year. The lease term must be at least ten years, and notwithstanding Minnesota Statutes, section 16B.24, subdivision 6, paragraph (a), may be up to 20 years. The commissioner of finance shall transfer $675,000 from the off-road vehicle account in the natural resources fund to the all-terrain vehicle account in the natural resources fund, in one or more installments, before July 1, 1998. The commissioner of finance shall transfer $135,000 from the off-highway motorcycle account in the natural resources fund to the all-terrain vehicle account in the natural resources fund, in one or more installments, before July 1, 1998. $750,000 in fiscal year 1996 is from the taconite environmental protection fund to acquire and develop the Iron Range off-highway vehicle recreation area.

Sec. 32. [OFF-HIGHWAY VEHICLE RECREATION AREA.]
Subd. 1. [DEFINITION.] For purposes of this act, "off-highway vehicle" means an all-terrain vehicle, an off-highway motorcycle, or an off-road vehicle as those terms are defined in Minnesota Statutes, Chapter 84.

Subd. 2. [85.013] [Subd. 12a.] [IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA.] The Iron Range off-highway vehicle recreation area is established in St. Louis County.

Subd. 3. [ACQUISITION AND MANAGEMENT.]
The commissioner of natural resources is authorized to acquire by gift or purchase the lands for the Iron Range off-highway vehicle recreation area. The commissioner shall manage the unit as a state recreation area as provided by Minnesota Statutes, section 86A.05, subdivision 3. The commissioner or the commissioner's designee in the trails and waterways division of the department of natural resources shall develop and manage the area for off-highway vehicle recreational use.

Subd. 4. [ADVISORY COMMITTEE.]
(a) A local area advisory committee is established to provide direction on the establishment, planning, development, and operation of the Iron Range off-highway vehicle recreation area. Except as provided in paragraph (b), the commissioner of natural resources shall appoint the members of the advisory committee.
(b) Membership on the advisory committee shall include:
(1) a representative of the all-terrain vehicle association of Minnesota;
(2) a representative of the amateur riders of motorcycles association;
(3) a representative of the Minnesota four-wheel drive</u> association;
(4) a representative of the St. Louis county board;
(5) a state representative appointed by the speaker of the house of representatives;
(6) a state senator appointed by the senate committee on committees;
(7) a designee of the local environmental community selected by the area environmental organizations;
(8) a designee of the local tourism community selected by the iron trail convention and visitors bureau; and
(9) a representative of the Tower regional office of the department of natural resources.
(c) The advisory committee shall elect its own chair and meetings shall be at the call of the chair.
(d) The advisory committee members shall serve as volunteers and accept no per diem.

Subd. 5. [MANAGEMENT PLAN.]
The commissioner and the local area advisory committee shall cooperatively develop a comprehensive management plan that provides for:
(1) multiple use recreation for off-highway vehicles;
(2) protection of natural resources;
(3) limited timber management;
(4) land acquisition needs; and
(5) road and facility development.
The completed management plan shall serve as the master plan for purposes of Minnesota Statutes, section 86A.09.

Subd. 6. [BOUNDARIES.]
The following described lands are located within the boundaries of the Iron Range off-highway vehicle recreation area: That part of St. Louis county, Minnesota, lying within:
Section 25, Township 58 North, Range 17 West
EXCEPT the North Half of the Northeast Quarter.
EXCEPT the Northwest Quarter.
EXCEPT the Northwest Quarter of the Southwest Quarter.
EXCEPT the Southwest Quarter of the Southwest Quarter lying north of the DM & IR Railroad.
Section 26, Township 58 North, Range 17 West.
EXCEPT the Northeast Quarter.
EXCEPT the Northwest Quarter.
EXCEPT the Southwest Quarter.
EXCEPT the Southeast Quarter, 100 feet along the east side of the quarter.
Section 35, Township 58 North, Range 17 West.
EXCEPT the Northwest Quarter.
EXCEPT the Southwest Quarter.
EXCEPT the Southeast Quarter.
EXCEPT the West 970 feet of the Northeast Quarter of the Northeast Quarter.
EXCEPT the Northwest Quarter of the Northeast Quarter.
Section 36, Township 58 North, Range 17 West.
EXCEPT the Southeast Quarter of the Southwest Quarter.

Subd. 7. [ADOPT-A-RECREATION AREA.]
The commissioner shall utilize Minnesota Statutes, section 85.045, as much as possible in developing and operating the Iron Range off-highway vehicle recreation area.

Subd. 8. [FEASIBILITY STUDY.]
The trails and waterways division of the department of natural resources in consultation with the local area advisory committee shall conduct a study to identify additional sites to expand the Iron Range off-highway vehicle recreation area and to determine the feasibility of acquiring, developing, and connecting the sites.

Subd. 9. [VEHICLES MUST BE REGISTERED.]
An off-highway vehicle being operated in the Iron Range off-highway vehicle recreation area must be properly registered under Minnesota Statutes, Chapter 84, Sec. 33.

Sect. 37, Subd. 6. [IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA.]
A state park permit is not required and a fee may not be charged for motor vehicle entry or parking at the Iron Range off-highway vehicle recreation area, except that the commissioner may establish special event fees.

APPENDIX B
IRON RANGE OHV RECREATION AREA
LOCAL AREA ADVISORY COMMITTEE MEMBERS

1998 MEMBER LIST

*Mr. Bill Aho
Iron Trail Conv. & Visitor's Bureau
c/o Super 8 Motel, Hwy 53
Eveleth, Minnesota 55734

*Ms. Lois Campbell (Vice Chair)
MN 4-Wheel Drive Association
P.O. Box 492
Sauk Rapids, Minnesota 56379

*Sen. Jerry R. Janezich
Minnesota State Senate
518 NE Eighth Street
Chisholm, Minnesota 55719

*Mr. Chuck Neil
Izaak Walton League
5887 West Sarri Road
Embarass, Minnesota 55732

*Ms. Ann Bjorgo
MN DNR, Trails & Waterways
P.O. Box 388
Tower, Minnesota 55790

*Rep. Tom Rukavina, Chair
MN House of Representatives
6930 Highway 169
Virginia, Minnesota 55792

Mr. Don Youngdahl
ARMCA (Alternate)
1800 Canyon Lane
New Brighton, MN 55112

Mr. Dave Buczynski (Alt)
MN 4-Wheel Drive Assn
3588 Freeman Road
Cloquet, Minnesota 55720

*Mr. Bob Cass
ATVAM 1st Vice President
P.O. Box 304
Marble, Minnesota 55764

Mr. Dan Kaselau (Alternate)
ATVAM 2nd Vice President
1080 192nd Avenue
New Richmond, WI 54017

*Mr. Al Mathwig
ARMCA
10626 Washburn Ave. So.
Bloomington, MN 55431

*Liz Prebich, Commissioner
St. Louis County
300 South 5th Avenue
Virginia, Minnesota 55792

Mr. Edward Schneider, Mayor
City of Gilbert (ex-officio)
Box 548, 16 So. Broadway
Gilbert, Minnesota 55741

Mr. Brian McCann (Secretary)
MN DNR, Trails & Waterways
Box 52, 500 Lafayette Road
St. Paul, MN 55155-4052

* Voting Members

APPENDIX B [Con't]

BYLAWS OF THE

IRON RANGE
OFF-HIGHWAY VEHICLE RECREATION AREA
LOCAL AREA ADVISORY COMMITTEE

ARTICLE I

NAME, PURPOSE AND OFFICE

1. NAME The name of this Advisory Committee is the IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA LOCAL AREA ADVISORY COMMITTEE, hereafter referred to as the "committee", which is a voluntary and unincorporated citizen's organization.

2. PURPOSE The purpose is to provide direction to the Department of Natural Resources (hereafter referred to as "DNR") in the establishment, planning, development and operation of the IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA. It shall serve as a communication link to recreational users, to DNR Trails & Waterways, to the Legislature, and to the public at-large. It shall have such other purposes as Advisory Committee Members deem related and beneficial to development of the IRON RANGE OFF-HIGHWAY VEHICLE AREA.

3. OFFICE The office of the committee shall be located at the Department of Natural Resources, Trails & Waterways Unit office located at Box 388, 406 Main Street, Tower, MN 55790.

ARTICLE II.

MEMBERS

1. COMMITTEE MEMBERS Shall be those appointed by the Commissioner of Natural Resources as specified by State Statutes establishing the IRON-RANGE OFF-HIGHWAY VEHICLE RECREATION AREA.

2. GENERAL POWERS. The affairs and responsibilities of the Committee shall be managed by the Committee in consultation with the DNR, Trails & Waterways Unit.

3. NUMBER, TENURE AND QUALIFICATIONS. The number of members shall be nine (9) as stipulated by ML 1996, Chap. 407, Subd. 4. Members shall be appointed by the Commissioner of Natural Resources, or designated by represented agencies or organizations. Designated alternates may participate in Advisory Committee mailings and discussion, and may vote on the member's behalf. The term of appointment shall be for two years, or until the appointing group or organization makes a change in the appointment. Members qualifications are stipulated in the authorizing statute, and members shall be accountable to the group they are to represent.

4. OFFICERS. The committee shall elect from their membership: a CHAIR, VICE CHAIR, SECRETARY and a TREASURER, (which together shall comprise an *Executive Committee*). The Executive Committee is empowered to conduct the day-to-day business of the committee and may speak on behalf of the committee. The committee shall elect its officers at its first official meeting. The term of election shall be for two (2) years, or until resignation, which ever occurs first. Officers may be removed from office with just cause by the full committee. Vacancies in any office shall be filled by the full committee for the balance of the term.

5. COMMITTEE SECRETARY. The committee shall appoint a Committee Secretary to handle all recording and formal communication needs.

6. OFFICERS, POWERS AND DUTIES.

A) CHAIR The Chair shall preside over committee meetings, develop meeting agendas (in consultation with Trails & Waterways Staff), carry out the day-to-day responsibilities of the committee, and conduct business which arises between regular committee meetings. The Chair will execute deeds, bonds, mortgages and other contracts, as authorized by the full committee and approved by the DNR. He/She may be an ex-officio member of any or all standing committees. In the absence or disability of the Chair, the Vice-Chair will act in his/her stead.

B) VICE CHAIR The Vice Chair shall act as the Chair in the absence or disability of the elected Chair. The Vice Chair shall also meet with the Chair, Treasurer and Secretary to set meeting agendas, carry out responsibilities, and conduct business which may arise between regular meetings. The Vice Chair may serve on any or all standing committees as an ex-officio member.

C) TREASURER The Treasurer, an elective position, shall make arrangements for committee funds and securities and shall keep a full and accurate account of all receipts and disbursements in books belonging to the committee. The Treasurer shall render to the Chair, Vice Chair and committee members, at the request of the committee, an account of all transactions and of the general financial condition of the committee. The Treasurer may also serve as Chair of the Fundraising Sub-Committee.

D) SECRETARY The Secretary is appointed by, but need not be a member of, the committee. The Secretary shall give notice of all upcoming meetings of the committee, and other activities and events hosted by the committee. The Secretary shall attend all regular meetings of the full committee and record all motions, discussion and votes taken by the committee. The Secretary shall perform similar duties for any standing committees upon request, or make arrangements for a suitable replacement. Proceedings shall be kept in a book kept specifically for that purpose. The Secretary shall perform related duties at the request of the committee.

7. VACANCY FOR EXECUTIVE COMMITTEE MEMBERS. If the office of any agent or member becomes vacant by reason of death, resignation, retirement, disqualification, removal from office, or otherwise, the Committee may choose a temporary replacement who, upon approval by the full committee, shall serve the remainder of the unexpired term.

ARTICLE III

MEETINGS

1. FIRST OFFICIAL/ORGANIZATIONAL MEETING. The first official/organizational meeting of the two year term shall be to elect Officers and appoint a Secretary. All Standing Committees and Sub-Committees will also be established. A Steering Committee may also be established at the call of the Chair. Long and short-term goals will be discussed and operating rules and procedures will be established. Regular Meeting dates will also be tentatively set.

2. REGULAR MEETINGS. Regular meetings of members shall be held at such date, time and place in said months as may be designated by the committee. Written, hand delivered or telephone notice must be provided to members and other interested parties, at least two weeks prior to each meeting. Public notice of the date, time, location and agenda topics will be made available prior to all regular meetings.

3. SPECIAL MEETINGS. Special meetings of the members shall be held as called by action of the Chair and approved by the Executive Committee. Steering Committee meetings may be called at any time by the Chair. Public notice of Special Meetings should be made if time permits.

4. NOTICE AND WAIVER OF NOTICE. Notice of any special meeting of the Advisory Committee shall be given at least seven (7) days prior thereto by written notice delivered personally or by mail to each member at his/her address shown by the records of the committee, or via telephone call.

Any member may waive notice of any meeting before, at or after the meeting. Attendance at any meeting by a members shall constitute waiver of notice of such meeting, except where a member attends a meeting for the express purpose of objecting to the transaction of any business because the meeting is not lawfully called or convened.

5. QUORUM. The act of 60% of the members present at a meeting at which a quorum is present shall be the act of the IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA LOCAL AREA ADVISORY COMMITTEE, unless the act of a greater number is required by law, rule or these by-laws. No official votes or business may be conducted lacking a quorum, and a motion to adjourn may be requested by any member. (See Attached)

6. RULES OF ORDER & PROCEDURE. *Robert's Rules of Order* (Revised) shall govern the meetings Of the Committee. Each Regular or Special meeting will provide opportunity for public comment and questions, for up to thirty (30) minutes as the first order of business in each meeting.

ARTICLE IV

CONTRACTS, CHECKS, GIFTS, INVESTMENTS, AND POWERS

1. CONTRACTS. The IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA LOCAL AREA ADVISORY COMMITTEE or the Executive Committee may enter into any contract or lease, or execute and deliver any instrument in the name of and on behalf of the full Committee, with the concurrence of the DNR. Such authority may be general or confined to specific instances.

2. CHECKS DRAFTS, ETC. All checks, drafts or orders for the payment of money, notes or other evidences of indebtedness issued in the name of committee, shall be signed by the Treasurer when given prior authorization by the committee, or by the Chair and the Treasurer, in the absence of a resolution by the full Committee.

3. GIFTS. The members of the Advisory Committee may accept, on behalf of the Committee, any contribution or gift for the general purpose or any special purpose of the committee or the donor.

4. AUTHORITY. In no event shall any person or other entity dealing with the Committee or the Executive Committee be obligated to inquire into their authority, to enter into and consummate any contract, transaction, or other action. In no event shall any person or other entity, other than the DNR or IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA LOCAL AREA ADVISORY COMMITTEE, enter into and consummate any contract, transaction, or other action (pursuant to the IRON RANGE OHV RECREATION AREA) without official authorization from both the DNR and the Committee.

5. POWERS. All powers possessed by the Committee, including, without limitation, those provided by the Legislature, DNR and the Minnesota Nonprofit Corporation Act, except such as are otherwise provided for in these by-laws and the laws and rules of the State of Minnesota, shall be and are hereby vested in and exercised by the IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA LOCAL ADVISORY COMMITTEE. The Committee may, by general resolution, delegate to standing or sub-committees of their own number, or to Officers of the Committee such powers as they may see fit, and may also revoke such delegations at will. This Committee is established for the sole purpose of providing direction and assistance to the Trails & Waterways Unit of the Minnesota Department of Natural Resources, the State Legislature and to the State of Minnesota.

ARTICLE V.

FISCAL YEAR

1. FISCAL YEAR. The fiscal year of the Advisory Committee shall begin on the first day of July and end on the last day of June of each calendar year.

ARTICLE VI.

AMENDMENT OF BY-LAWS

1. AMENDMENTS These by-laws may be altered, amended or repealed and new by-laws adopted at any regular committee meeting. However, at least two weeks (14 days) notice of this proposed action shall be provided to both members and the general public consistent with Article III, Sect. 2-6.

Approved and adopted by the
IRON RANGE OFF-HIGHWAY VEHICLE RECREATION AREA
LOCAL AREA ADVISORY COMMITTEE
this 12th day of November, l996.

Signed copy on file with DNR Trails & Waterways.

APPENDIX C
IRON RANGE OHV RECREATION AREA
DNR TECHNICAL TEAM MEMBERS

1998 MEMBER LIST

Mr. Tim Wallace
Area Wildlife Manager
2005 Highway 37
Eveleth, Minnesota 55734
Phone: 218/749-7748

Mr. Jim Sellner
Sr Engineer, Minerals
1525 3rd Avenue East
Hibbing, Minnesota 55746
Phone: 218/262-6767

Ms. Amy Loiselle
Hydrologist, Div of Waters
2005 Highway 37
Eveleth, Minnesota 55734
Phone: 218/749-9610

Mr. Doug Thompson
Ely Area Fisheries
1429 Grant McMahon Blvd.
Ely, Minnesota 55731
Phone: 218/365-7280

Mr. Steve Wilson
Non-Game Wildlife Specialist
2005 Highway 37
Eveleth, Minnesota 55734
Phone: 218/749-9607

Mr. Larry Olson
Area Forester
1208 East Howard Street
Hibbing, Minnesota 55746
Phone: 218/262-6764

Mr. Ron Smith
Area Enforcement Supv.
3703 Woodlawn Drive
Eveleth, Minnesota 55734
Phone: 218/744-2199

Mr. Roger Nelson
Area Forest Supervisor
2005 Highway 37
Eveleth, Minnesota 55734
Phone: 218/749-7749

Ms. Ann Bjorgo
MN DNR, Trails & Waterways
P.O. Box 388
Tower, Minnesota 55790
Phone: 218/753-6256

Mr. Ron Karels
Mgr., McCarthy State Park
7622 McCarthy Beach Road
Side Lake, Minnesota 55781
Phone: 218/254-2411

Dave Holmbeck
Region II Envir Review
1201 East Highway 2
Grand Rapids, Minnesota 55744
Phone: 218/327-4317

Jim Weseloh
Region II Planner
1201 East Highway 2
Grand Rapids, Minnesota 55744
Phone: 218/327-4127

APPENDIX D
MINOR RELEASE AND WAIVER OF LIABILITY AND INDEMNITY AGREEMENT

(EXAMPLE)

Description and Location of Event | Date Release Signed

I/WE HEREBY RELEASE, WAIVE, COVENANT NOT TO SUE AND DISCHARGE the promoter, participants, racing association, sanctioning organization or any subdivision thereof, track operator, track owner, officials, vehicle, owners, drivers, pit crews, any persons in any restricted area, promoters, sponsors, advertisers, owners, lessees of premises used to conduct the event and each of them, their officers and employees, all for the purposes therein referred to as "Releases," from all liability to the undersigned, my/our personal representatives, assigns, heirs and next of kin for any and all loss or damage and any claim or any demand on account of any injury to the participant included, but not limited to, death whether caused by the negligence of the" Releasees," or otherwise while the minor is in or upon the restricted area and/or competing, officiating in, observing, working for or for any purpose participating in the event.

I/we will inform and instruct the said minor participant that upon entering any restricted area the minor must continuously thereafter inspect such restricted area and all portions thereof which the minor enters and with which he comes in contact and I/we further warrant that the minor's entry upon such restricted area or areas and his participation, if any, in the event constitutes an acknowledgement that he,(minor), has inspected such restricted area and that he finds and accepts the same as being safe and reasonably suited for the purposes of his use, and he further agrees and warrants that if, at any time, he is in or about restricted areas and if he feels anything is unsafe, he will immediately advise the officials of such and will leave the restricted areas.

The undersigned expressly acknowledge and agree that the activities of the event are very dangerous and involve the risk of serious injury and/or death and/or property damage.

Each of the undersigned parents or legal guardians for the minor participant agrees to indemnify and save and hold harmless the "Releasees," and each of them from any loss, liability, damage or cost they may incur due to the presence of the said minor in or upon the restricted area or in anyway competing, officiating, observing or working for any purpose participating in the event and caused by the negligence of the "Releasees" or otherwise.

THE UNDERSIGNED PARENTS OR LEGAL GUARDIANS HAVE READ AND VOLUNTARILY SIGN THE MINOR RELEASE AND WAIVER OF LIABILITY AND INDEMNITY AGREEMENT AND FURTHER AGREE THAT NO ORAL REPRESENTATIONS, STATEMENTS OR INDUCEMENTS APART FROM THE FOREGOING WRITTEN AGREEMENT HAVE BEEN MADE.

PRINT NAME OF PARENT OR GUARDIAN(S) | *PRINT NAME OF PARTICIPANT*

SIGNATURE OF PARENT OR GUARDIAN(S) | *WITNESS*

ADDRESS (OF PARENT OR GUARDIAN(S)

RELEASE AND WAIVER
OF LIABILITY AND INDEMNITY AGREEMENT

(EXAMPLE)

DESCRIPTION & LOCATION OF EVENT *DATE RELEASE SIGNED*

IN CONSIDERATION of being permitted to enter for any purpose any **RESTRICTED AREA** (herein defined as including but not limited to the racing surface, pit areas, infield, burn out area, approach area, shut down area, and all walkways, concessions and other areas appurtenant to any area where any activity related to the event shall take place), or being permitted to compete, officiate, observe, work for, or for any purpose participate in any way in the event **EACH OF THE UNDERSIGNED,** for himself, his personal representatives, heirs, and next of kin, acknowledges, agrees and represents that he has, or will immediately upon entering any of such restricted areas, and will continuously thereafter, inspected such restricted areas and all portions thereof which he enters and with which he comes in contact and he does further warrant that his entry upon such restricted area or areas and his participation, if any, in the event constitutes an acknowledgement that he has inspected such restricted area and that he finds and accepts the same as being safe and reasonably suited for the purposes of his use, and he further agrees and warrants that if, at any time, he is in or about restricted areas and he feels anything to be unsafe, he will immediately advise the officials of such and will leave the restricted areas:

1. **HEREBY RELEASES, WAIVES, DISCHARGES AND COVENANTS NOT TO SUE** the promoter, participants, racing association, sanctioning organization or any subdivision thereof, track operator, track owner, officials, car owners, drivers, pit crews, any persons in any restricted area, promoters, sponsors, advertisers, owners and lessees of premises used to conduct the event and each of them, their officers and employees, all for the purposes herein referred to as "releasees', from all liability to the undersigned, his personal representatives, assigns, heirs, and next of kin for any and all loss or damage, and any claim or demands therefor on account of injury to the person or property or resulting in death of the undersigned, whether caused by the negligence of the releasees or otherwise while the undersigned is in or upon the restricted area, and/or, competing, officiating in, observing, working for, or for any purpose participating in the event.

2. **HEREBY AGREES TO INDEMNIFY AND SAVE AND HOLD HARMLESS** the releasees and each of them from any loss, liability, damage, or cost they may incur due to the presence of the undersigned in or upon the restricted area or in any way competing, officiating, observing, or working for, or for any purpose participating in the event and whether caused by the negligence of the releasees or otherwise.

3. **HEREBY ASSUMES FULL RESPONSIBILITY FOR AND RISK OF BODILY INJURY, DEATH OR PROPERTY DAMAGE** due to the negligence of releasees or otherwise while in or upon the restricted area and/or while competing, officiating, observing or working for or for any purpose participating in the event.

EACH OF THE UNDERSIGNED expressly acknowledges and agrees that the activities of the event are dangerous and involve the risk of serious injury and/or death and/or property damage. **EACH OF THE UNDERSIGNED** further expressly agrees that the foregoing release, waiver, and indemnity agreement is intended to be as broad and inclusive as is permitted under the Laws of Minnesota and that if any portion thereof is held invalid it is agreed that the balance shall notwithstanding, continue in full legal force and effect.

THE UNDERSIGNED HAS READ AND VOLUNTARILY SIGNS THE RELEASE AND WAIVER OF LIABILITY AND INDEMNITY AGREEMENT, and further agrees that no oral representations, statements or inducements apart from the foregoing written agreement have been made.

PRINT NAME HERE	*SIGN NAME HERE*
PRINT NAME HERE	*SIGN NAME HERE*
PRINT NAME HERE	*SIGN NAME HERE*
PRINT NAME HERE	*SIGN NAME HERE*
PRINT NAME HERE	*SIGN NAME HERE*
PRINT NAME HERE	*SIGN NAME HERE*

APPENDIX E
FIELD MAINTENANCE CHECKLIST

(EXAMPLE)

DATE INVENTORIED _____

Trail # _____
Legal Description _____
Aerial Photo # _____

TRAIL DESCRIPTION / CONDITION: **POOR> >GOOD**
(Indicate relative trail condition)

Type: (check one)
____Motorcycle
____ATV
____4x4
____Shared; Describe use: _____

Average Width _____
Approx. Length _____
Average Grade _____ (range - in percent)

SOILS & VEGETATION (N=None, L=Low, M=Medium, H=High)
_____ Soil compaction, rutting; rills or gullies?
_____ Evidence of soil erosion?
_____ Impacts to trees?
_____ Impacts to shrubs or brush?
_____ Impacts to grasses, herbs, or groundcover plants?

RIPARIAN AREAS (N=None, L=Low, M=Medium, H=High)
_____Streambank or shoreland erosion?
_____Wetland impacts?
_____Impacts to drainage structures?
_____Buffer area impacts?

IS THERE EVIDENCE OF ILLEGAL / UNAUTHORIZED OHV USE? YES / NO [Circle one]
IF YES, DESCRIBE LOCATION(S):_____
_____
_____
_____

MISCELLANEOUS OBSERVATIONS [Wildlife habitat, buildings, signage, sensitive plants, exotics, etc.]
_____
_____
_____
_____
_____

DEPARTMENT OF NATURAL RESOURCES

[Detailed instructions for completing this form are listed on back]

TRAIL INSPECTION /MAINTENANCE RECORD

DATE: _____

Mgmt Unit _____ Year Built _____
Trail # _____ Type/Class _____
Inspected By _____ Appx. Length _____
Maintained By _____ Location _____

REFERENCE POINT OR MILEPOST #	INSPECTION NOTES	MAINTENANCE NOTES	REMARKS
Mile #			
Mile #			
Mile #			
Mile #			
Mile #			
Mile #			
Mile #			
Mile #			
Mile #			
Mile #			
Mile #			
Mile #			
Mile #			
Mile #			

SUMMARY	INSPECTION	MAINTENANCE	SUMMARY TOTAL
EST. DAYS/HOURS			
ACT. DAYS/HOURS			
% JOB COMPLETE?			

FORM COMPLETED BY: _____ *(Name/Title)*

DATE: _____

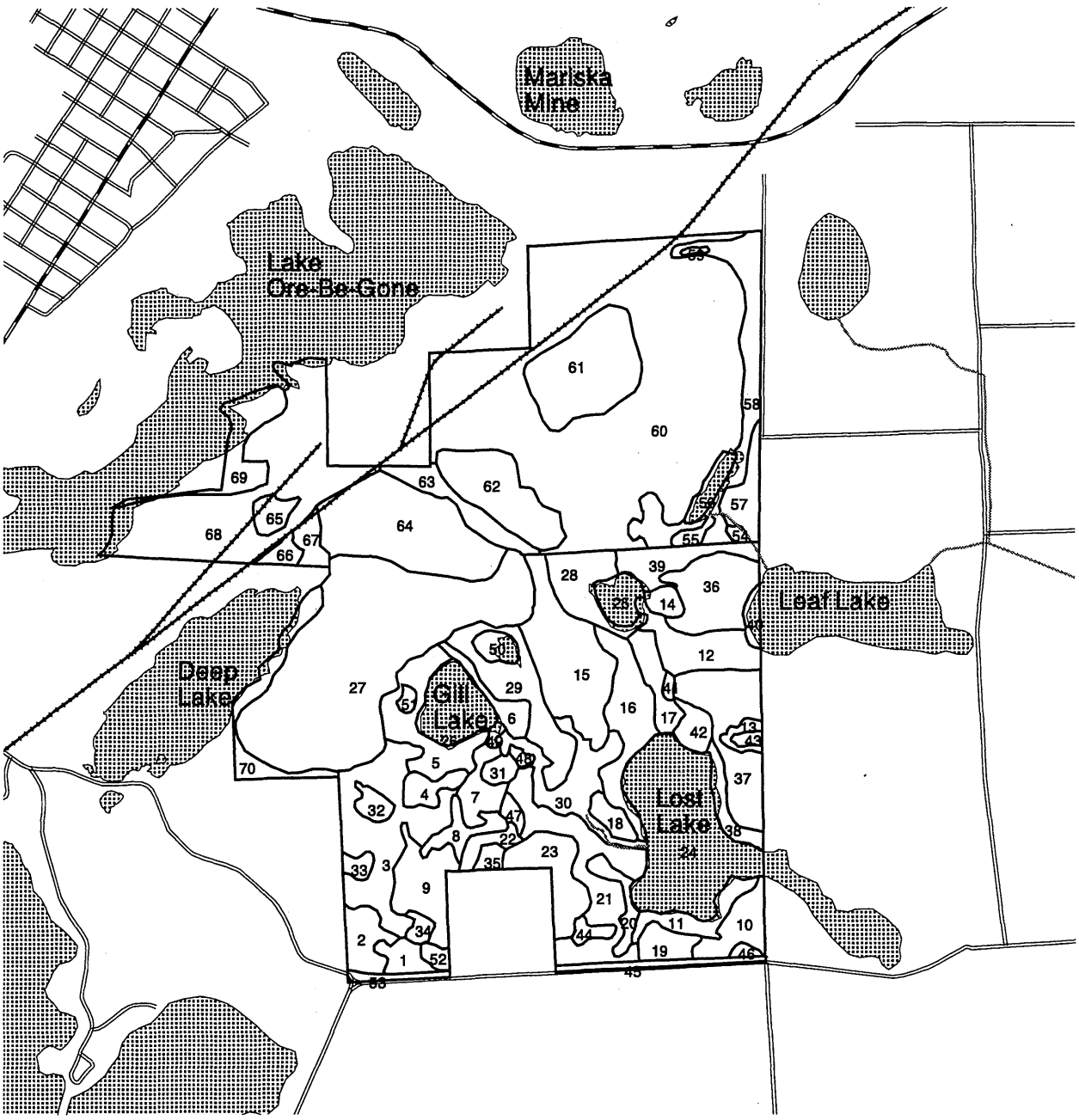
APPENDIX F
IRON RANGE OHV RECREATION AREA
VEGETATIVE COVER TYPES

Table F-1. Forest cover types & age class distribution [Sect. 36 Only]

TYPE	SPECIES/SYMBOL	AGE	ACRES	DIAMETER	STEMS/CORDS/BD FT/ACRE
#1	Norway Pine/NP	17	5	0 - 1"	751-1250 / 7.6-12.5 / 3751-6250
#2	Norway Pine/NP	24	9	3 - 5"	251-750 / 3.0-7.5 / 1251-3750
#3	Aspen/A	51	37	9 - 15"	1251-1750 / 12.6-17.5 / 6251-8750
#4	Aspen/A	14	6	1 - 3"	4251+ / 42.6+ / 21251+
#5	Black Spruce/BSL	82	19	5 - 9"	251-750 / 3.0-7.5 / 1251-3750
#6	Aspen/A	53	6	9 - 15"	1751-2250 / 17.6-22.5 / 8751-11250
#7	Black Spruce/BSL	71	8	5 - 9"	251-750 / 3.0-7.5 / 1251-3750
#8	Black Spruce/BSL	24	7	0 - 1"	751-1250 / 7.6-12.5 / 3751-6250
#9	Black Spruce/BSL	75	16	5 - 9"	751-1250 / 7.6-12.5 / 3751-6250
	Old Mining Area/Dev		11		
#11	Birch/Bi	60	9	5 - 9"	1251-1750 / 12.6-17.5 / 6251-8750
#12	Aspen/A	67	17	9 - 15"	1251-1750 / 12.6-17.5 / 6251-8750
#13	Black Spruce/BSL	140	2	5 - 9"	751-1250 / 7.6-12.5 / 3751-6250
#14	Aspen/White Pine/A	53	4	5 - 9"	1251-1750 / 12.6-17.5 / 6251-8750
#15	Aspen/A	48	35	9 - 15"	2251-2750 / 22.6-27.5 / 11251-13750
#16	Aspen/A	40	21	9 - 15"	1251-1750 / 12.6-17.5 / 6251-8750
#17	Ash/Ash	62	9	5 - 9"	751-1250 / 7.6-12.5 / 3751-6250
#18	Aspen/White Spruce/A	12	4	0 - 1"	3251-3750 / 32.6-37.5 / 16251-18750
#19	Norway Pine/NP	17	7	0 - 1"	1251-1750 / 12.6-17.5 / 6251-8750
#20	Ash/Ash	60	5	5 - 9"	251-750 / 3.0-7.5 / 1251-3750
#21	Aspen/White Pine/A	50	30	9 - 15"	2251-2750 / 22.6-27.5 / 11251-13750
#22	Aspen/A	54	4	9 - 15"	751-1250 / 7.6-12.5 / 3751-6250
#23	Birch/White Pine/Bi	45	16	5 - 9"	1751-2250 / 17.6-22.5 / 8751-11250
#24	Lake/L		58		
#25	Pond/L		7		
#26	Lake/L		16		
#27	Old Mining Area/Dev		119		2251-2750 / 22.6-27.5 / 11251-13750
#28	Gravel Pit/IDev		15		
#29	Marsh/Mh		22		
#30	Lowland Brush/LB		20		
#31	Tamarack/T	24	3	0 - 1"	751-1250 / 7.6-12.5 / 3751-6250
#32	Jack Pine/JP	17	4	0 - 1"	1251-1750 / 12.6-17.5 / 6251-8750
#33	Wildlife Opening		2		2751-3250 / 27.6-32.5 / 13751-16250
#34			2		
#35			2		
#36	Aspen/A	11	21	0 - 1"	4251+ / 42.6+ / 21251+
#37	Aspen/A	11	26	0 - 1"	4251+ / 42.6+ / 21251+
#38	Aspen/A	67	6	9 - 15"	1251-1750 / 12.6-17.5 / 6251-8750
#39	Aspen/A	67	12	9 - 15"	1251-1750 / 12.6-17.5 / 6251-8750

Proposed Iron Range Off-Highway Vehicle Recreation Area

Vegetative Cover Types (Refer to Table 1)



0.5 0 Miles

N
W E
S

Legend

- Major Roads
- Minor Roads
- Rail
- Streams
- Lakes
- 25 - Polygon Number reference to Table 1 'Type'
- Cover Type Boundaries

Source:
Minnesota Dept of Natural Resources, Trails & Waterways Unit, 1997.

Note:
All acreage and land ownership information depicted on this map is approximate and subject to change. Please check with the St Louis County Registrar to obtain certified land records.

Table F-1. [CON'T] FOREST TYPES, AGE CLASS DISTRIBUTION [Rest of Site]

TYPE	SPECIES/SYMBOL	ACRES	DIAMETER	STEMS/CORDS/BD FT PER ACRE
#40	Perm. Water	3	NA	
#41	Balsam Fir	1	5-8.9"	2251-2750 / 22.6-27.5 / 11251-13750
#42	Birch/Bi	5	5-8.9"	1751-2250 / 17.6-22.5 / 8751-11250
#43	Lowland Brush	1	NA	
#44	Aspen/A	3	0-0.9"	4251+ / 42.6+ / 21251+
#45	Roads	5	NA	
#46	Aspen/A	1	1-2.9"	1751-2250 / 17.6-22.5 / 8751-11250
#47	Aspen/A	2	0-0.9"	4251+ / 42.6+ / 21251+
#48	Tamarack/T	1	5-8.9"	1751-2250 / 17.6-22.5 / 8751-11250
#49	Tamarack/T	1	5-8.9"	2251-2750 / 22.6-27.5 / 11251-13750
#50	Perm. Water	4	NA	
#51	Tamarack/T	1	5-8.9"	751-1250 / 7.6-12.5 / 3751-6250
#52	Aspen/A	2	1-2.9"	1251-1750 / 12.6-17.5 / 6251-8750
#53	Roads	3	NA	
#54	Perm. Water	1	NA	
#55	Perm. Water	2	NA	
#56	Perm. Water	5	NA	
#57	Upland Brush	9	NA	
#58	Aspen/A	30	5-8.9"	1251-1750 / 12.6-17.5 / 6251-8750
#59	Perm. Water	1	NA	
#60	Aspen/A	219	1-2.9"	2251-2750 / 22.6-27.5 / 11251-13750
#61	Aspen/A	35	0-0.9"	1251-1750 / 12.6-17.5 / 6251-8750
#62	Aspen/A	24	0-0.9"	1251-1750 / 12.6-17.5 / 6251-8750
#63	Aspen/A	11	5-8.9"	1251-1750 / 12.6-17.5 / 6251-8750
#64	Aspen/A	47	0-0.9"	2251-2750 / 22.6-27.5 / 11251-13750
#65	Aspen/A	5	3-4.9"	751-1250 / 7.6-12.5 / 3751-6250
#66	Marsh	3	NA	
#67	Aspen/A	5	3-4.9"	751-1250 / 7.6-12.5 / 3751-6250
#68	Aspen/A	73	1-2.9"	2251-2750 / 22.6-27.5 / 11251-13750
#69	Aspen/A	15	5-8.9"	1251-1750 / 12.6-17.5 / 6251-8750
#70	Aspen/A	13	5-8.9"	1251-1750 / 12.6-17.5 / 6251-8750

APPENDIX G
IRON RANGE OHV RECREATION AREA
PLANT/ANIMAL SPECIES LISTS

TABLE G-1. POTENTIAL AVIAN SPECIES IN PROJECT AREA[1]

Common Name	Scientific Name
Common Tern	*Sterna hirundo*
Rock Dove	*Columbia livia*
Mourning Dove	*Zenaida macroura*
Yellow-Billed Cuckoo	*Coccyzus americanus*
Black-Billed Cuckoo	*Coccyzus erythropthalmus*
Great Horned Owl	*Bubo virginianus*
Barred Owl	*Strix varia*
Long-Eared Owl	*Asio otus*
Short-Eared Owl	*Asio flammeus*
Saw-Whet Owl	*Aegolius acadicus*
Snowy Owl	*Nyctea scandiaca*
Great Grey Owl	*Strix nebulosa*
Common Nighthawk	*Chordeiles minor*
Ruby-Throated Hummingbird	*Archilochus colubris*
Belted Kingfisher	*Megaceryle alcyon*
Common Flicker	*Colaptes auratus*
Pileated Woodpecker	*Dryocopus pileatus*
Red-Headed Woodpecker	*Melanerpes erythrocephalus*
Yellow-Bellied Sapsucker	*Melanerpes erythrocephalus*
Hairy Woodpecker	*Dendrocopus villosus*
Northern Three-Toed Woodpecker	*Picoides tridactylus*
Great Crested Flycatcher	*Myiarchus crinitus*
Eastern Phoebe	*Sayornis phoebe*
Downy Woodpecker	*Dendrocopus pubescens*
Black-Backed Three-Toed Woodpecker	*Picoides articus*
Eastern Kingbird	*Tyrannus tyrannus*
Yellow-Bellied Flycatcher	*Empidonax flaviventris*
Alder Flycatcher	*Empidonax alnorum*
Least Flycatcher	*Empidonax minimus*
Double-Crested Cormorant	*Phalacrocorax auritus*
Great Blue Heron	*Ardea herodias*
Least Bittern	*Ixobrychus exilis*
American Bittern	*Botaurus lentiginosus*
Mallard	*Anas platyrhynchos*
Blue-Winged Teal	*Anas discors*
Common Goldeneye	*Bucephala clangula*
American Widgeon	*Mareca americana*
Hooded Merganser	*Lophodytes cucullatus*
Common Merganser	*Mergus merganser*
Red-Breasted Merganser	*Mergus serrator*
Turkey Vulture	*Cathartes aura*
Osprey	*Pandion haliaetus*
Bald Eagle	*Haliaeetus leucocephalus*
Marsh Hawk	*Circus cyaneus*
Goshawk	*Accipiter gentilis*
Sharp-Shinned Hawk	Accipiter striatus
Cooper's Hawk	Accipiter cooperii
Broad-Winged Hawk	*Buteo platypterus*
Red-Tailed Hawk	*Buteo jamaicensis*
Merlin	*Falco columbarius*
Peregrine Falcon	*Falco peregrinus*
Spruce Grouse	*Canachites canadensis*
Sharp-Tailed Grouse	*Pedioecetes phasianellus*
Ruffed Grouse	*Bonasa umbellus*

[1] Source: MN DNR, SPECLIST: Ecological Community Classification System/Wildlife Habitat Preference List & Diversity Index.

TABLE G-1. [Con't] POTENTIAL AVIAN SPECIES IN PROJECT AREA

Common Name	Scientific Name
Spotted Sandpiper	*Actitus macularia*
American Woodcock	*Philohela minor*
Common Snipe	*Capella gallinago*
Herring Gull	*Larus argentatus*
Eastern Wood Peewee	*Contopus virens*
Olive-Sided Flycatcher	*Nuttallornis borealis*
Tree Swallow	*Iridoprocne bicolor*
Cliff Swallow	*Petrochelidon pyrrhonota*
Grey Jay	*Perisoreus canadensis*
Blue Jay	*Cyanocitta cristata*
Common Raven	*Corvus corax*
Common Crow	*Corvus brachyrhynchos*
Black-Capped Chickadee	*Parus atricapillus*
Boreal Chickadee	*Parus hudsonicus*
Red-Breasted Nuthatch	*Sitta candensis*
Brown Creeper	*Certhia familiaris*
House Wren	*Troglodytes aedon*
Winter Wren	*Troglodytes troglodytes*
Grey Catbird	*Dumetella carolinensis*
Brown Thrasher	*Toxostoma rufum*
Wood Thrush	*Hyocichla mustelina*
Hermit Thrush	*Catharus guttatus*
Swainson's Thrush	*Catharus ustulatus*
Robin	*Turdus migratorius*
Veery	*Catharus fuscescens*
Golden-Crowned Kinglet	*Regulus satrapa*
Ruby-Crowned Kinglet	*Regulus calendula*
Bohemian Waxwing	*Bombilla garrulus*
Starling	*Sturnus vulgaris*
Solitary Vireo	*Vireo solitarius*
Red-Eyed Vireo	*Vireo olivaceus*
Philadelphia Vireo	*Vireo philadelphicus*
Black and White Warbler	*Mniotilta varia*
Golden-Winged Warbler	*Vermivora chrysoptera*
Tennessee Warbler	*Vermivora peregrina*
Nashville Warbler	*Vermivora ruficapilla*
Yellow Warbler	*Dendroica petechia*
Magnolia Warbler	*Dendroica magnolia*
Black-Throated Blue Warbler	*Dendroica caerulescens*
Yellow-Rumped Warbler	*Dendroica coronata*
Black-Throated Green Warbler	*Dendroica virens*
Blackburnian Warbler	*Dendroica fusca*
Chestnut-Sided Warbler	*Dendroica pensylvanica*
Bay-Brested Warbler	*Dendroica castanea*
Palm Warbler	*Dendroica palmarum*
Ovenbird	*Seiurus aurocapillus*
Northern Waterthrush	*Seiurus noveboracensis*
Connecticut Warbler	*Oporornis agilis*
Mourning Warbler	*Oporornis philadelphia*
Common Yellowthroat	*Geothlypis trichas*
Canada Warbler	*Wilsonia canadensis*
American Redstart	*Setophaga ruticilla*
Bobolink	*Dolichonyx oryzivorus*
Eastern Meadowlark	*Sturnella magna*
Red-Winged Blackbird	*Agelaius phoeniceus*
Brewer's Blackbird	*Euphagus cyanocephalus*
Common Grackle	*Quiscalus quiscalus*
Scarlet Tanger	*Piranga olivacea*
Rose-Breasted Grosbeak	*Pheucticus ludovicianus*
Indigo Bunting	*Passerina cyanea*
Evening Grosbeak	*Hesperiphona vespertina*
Purple Finch	*Carpodacus purpureus*
Pine Grosbeak	*Pinicola enucleator*

TABLE G-1. [Con't] POTENTIAL AVIAN SPECIES IN PROJECT AREA

Common Name	Scientific Name
Common Redpoll	*Acanthis flammea*
Pine Siskin	*Spinus pinus*
American Goldfinch	*Spinus tristis*
Red Crossbill	*Loxia curvirostra*
White-Winged Crossbill	*Loxia leucoptera*
Savannah Sparrow	*Passerculus sandwichensis*
Le Conte's Sparrow	*Ammospiza leconteii*
Vesper Sparrow	*Pooecetes gramineus*
Dark-Eyed Junco	*Junco hyemalis*
Chipping Sparrow	*Spizella passerina*
Clay-Colored Sparrow	*Spizella pallida*
White-Throated Sparrow	*Zonotrichia albicollis*
Lincoln's Sparrow	*Melospiza lincolnii*
Swamp Sparrow	*Melospiza georgiana*
Song Sparrow	*Melospiza melodia*

TABLE G-2. POTENTIAL REPTILIAN & AMPHIBIAN SPECIES IN PROJECT AREA[2]

Common Name	Scientific Name
Redbelly Snake	*Storeria occipitomaculata*
Common Garter Snake	*Thamnophis sirtalis*
Eastern Newt	*Notophthalmus viridescens*
Blue-Spotted Salamander	*Ambystoma laterale*
Redback Salamander	*Plethodon cinerus*
American Toad	*Bufo americanus*
Spring Peeper	*Hyla crucifer*
Grey Treefrog	*Hyla versicolor*
Striped Chorus Frog	*Pseudacris trisertata*
Northern Leopard Frog	*Rana pipiens*
Wood Frog	*Rana sylvatica*

TABLE G-3. POTENTIAL MAMMALIAN SPECIES IN PROJECT AREA[3]

Common Name	Scientific Name
Star-Nose Mole	*Condylura cristata*
Cinerous Shrew	*Sorex cinereus*
Richardson Shrew	*Sorex arcticus*
Northern Water Shrew	*Sorex palustris*
Pygmy Shrew	*Microsorex hoyi*
Short-Tailed Shrew	*Blarina brevicauda*
Little Brown Bat	*Myotis lucifugus*
Keen's Myotis	*Myotis keenii*
Big Brown Bat	*Eptesicus fuscus*
Silver-Haired Bat	*Lasionycteris noctivagans*
Snowshoe Hare	*Lepus americanus*
Woodchuck	*Marmota monax*
Least Chipmunk	*Eutamias minimus*
Eastern Chipmunk	*Tamias striatus*
Red Squirrel	*Tamias striatus*
Eastern Grey Squirrel	*Sciurus carolinensis*
Northern Flying Squirrel	*Glaucomys sabrinus*
Beaver	*Castor canadensis*
Woodland Deer Mouse	*Peromyscus maniculatus gracili*
Bog Lemming	*Synaptomys cooperi*
Northern Bog Lemming	*Synaptomys borealis*

[2] **Source:** MN DNR, SPECLIST: Ecological Community Classification System/Wildlife Habitat Preference List & Diversity Index.

[3] **Source:** MN DNR, SPECLIST: Ecological Community Classification System/Wildlife Habitat Preference List & Diversity Index.

TABLE G-3. [Con't] POTENTIAL MAMMALIAN SPECIES IN PROJECT AREA[4]

Common Name	Scientific Name
Boreal Redback Vole	*Clethrionomys gapperi*
Meadow Vole	*Microtus pennsylvanicus*
Rock Vole	*Microtus chrotorrhinus*
Meadow Jumping Mouse	*Zapus hudsonius*
Woodland Jumping Mouse	*Napaeozapus insignis*
Porcupine	*Erethizon dorsatum*
Black Bear	*Ursus americanus*
Raccoon	*Procyon lotor*
Fisher	*Martes pennanti*
Marten	*Martes americana*
Short-Tailed Weasel	*Mustela erminea*
Long-Tailed Weasel	*Mustela frenata*
Least Weasel	*Mustela rixosa*
Mink	*Mustela vison*
Striped Skunk	*Mephitis mephitis*
Red Fox	*Vulpes fulva*
Coyote	*Canis latrans*
Eastern Timber Wolf	*Canis lupus*
Canada Lynx	*Lynx canadensis*
Bobcat	*Lynx rufus*
White-Tailed Deer	*Odocoileus virginianus*
Moose	*Alces alces*

TABLE G-4.
STATE ENDANGERED, THREATENED & SPECIAL CONCERN FISH & WILDLIFE SPECIES OF ST. LOUIS COUNTY, MINNESOTA

BIRDS	STATUS
Charadrius melodus; Piping Plover	Endangered (T)
Falco peregrinus; Peregrine Falcon	Threatened (E)
Haliaeetus leucocephalus; Bald Eagle	Special Concern (T)
Lanius ludovicianus; Loggerhead Shrike	Threatened
Sterna hirundo; Common Tern	Threatened

MAMMALS	STATUS
Canis lupus; Gray (Timber) Wolf	Special Concern (T)
Felis concolor; Mountain Lion	Special Concern
Myotis septentrionalis; Northern Myotis	Special concern
Phenacomys intermedius; Heather Vole	Special Concern
Pipistrellus subflavus; Eastern Pipistrelle	Special Concern
Spilogale putorius; Eastern Spotted Skunk	Threatened

AMPHIBIANS & REPTILES	STATUS
Chelydra serpentina; Snapping Turtle	Special Concern
Clemmys insculpta; Wood Turtle	Threatened

FISH	STATUS
Acipenser fulvescens; Lake Sturgeon	Special Concern

( ) Federal status listing.

Source: MN DNR, 1996. Natural Heritage & Nongame Research Program, Ecological Services Section, 500 Lafayette Road, St. Paul, MN 55155-4025.

[4] **Source:** MN DNR, SPECLIST: Ecological Community Classification System/Wildlife Habitat Preference List & Diversity Index.

TABLE G-5.
STATE ENDANGERED, THREATENED & SPECIAL CONCERN PLANT SPECIES
ST. LOUIS COUNTY, MINNESOTA

PLANTS	STATUS
Adoxa moschatellina; Moschatel	Special Concern
Allium schoenoprasum var. sibiricum; Wild Chives	Threatened
Ammophila breviligulata; Beach Grass	Threatened
Botrychium rugulosum; St. Lawrence Grapefern	Threatened
Calamagrostis lacustris; Marsh Reedgrass	Special Concern
Caltha Natans; Floating Marsh Marigold	Endangered
Carex exilis; Coastal Sedge	Special Concern
Carex garberi; Garber's Sedge	Threatened
Carex katahdinensis; Mount Katahdin Sedge	Threatened
Carex pallescens; Pale Sedge	Endangered
Cetraria aurescens; Lichen	Special Concern
Claydonia pseudorangiformis; Lichen	Special Concern
Claytonia caroliniana; Carolina Spring Beauty	Special Concern
Deschampsia flexuosa; Slender Hairgrass	Special Concern
Eleocharis nitida; Neat Spike-Rush	Threatened
Eleocharis quinceflora; Few-Flowered Spike Rush	Special Concern
Euphrasia hudsoniana; Hudson Bay Eyebright	Special Concern
Juncus stygius var. americanus; Bog Rush	Special Concern
Listeria auriculata; Auricled Twayblade	Endangered
Litorella uniflora; American Shore Plantain	Special Concern
Muhlenbergia uniflora; One-Flowered Muhly	Special Concern
Phacelia franklinii; Franklin's Heliotrope	Special Concern
Platanthera clavellata; Club-Spur Orchid	Special Concern
Polygonum viviparum; Alpine Bistort	Special Concern
Potamogeton vaseyi; Vasey's Pondweed	Special Concern
Pseudocyphellaria crocata; Lichen	Endangered
Pyrola minor; Small Shinleaf	Special Concern
Ranunculus lapponicus; Lapland Buttercup	Special Concern
Rhynchospora fusca; Sooty-Colored Beak Rush	Special Concern
Salix pellita; Satiny Willow	Special Concern
Sparganium glomeratum; Clustered Bur-Reed	Endangered
Stricta fuliginosa; Lichen	Special Concern
Subularia aquatica; Awlwort	Threatened
Tomenthypnum falcifolium; Moss	Special Concern
Tsuga canadensis; Eastern Hemlock	Special Concern
Waldsteinia fragariodes; Barren Strawberry	Special Concern
Xyris montana; Montane Yellow-Eyed Grass	Special Concern

Source: MN DNR, 1996. Natural Heritage & Nongame Research Program, Ecological Services Section, 500 Lafayette Road, St. Paul, MN 55155-4025.

APPENDIX H
IRON RANGE OHV RECREATION AREA
DNR SPECIAL EVENT/SPECIAL USE PERMIT

(EXAMPLE)

TODAY'S DATE: _____ PERMIT #_____

DNR UNIT NAME: _____
DNR CONTACT / UNIT / PHONE: _____
FACILITIES / LOCATIONS COVERED BY USE PERMIT_____

PERMIT DATA

PERMIT DATES/TIMES: FROM __/__/____ TO __/__/____ DAILY TIMES_____
PERMITTEE NAME / PHONE: _____
MAILING ADDRESS: _____
CONTACT PERSON / PHONE: _____

EVENT DESCRIPTION

_____
_____
_____
_____

SPECIAL TERMS & CONDITIONS [Example]

1. Permittee shall abide by all DNR rules and regulations, unless specifically exempted or otherwise permitted by the Commissioner of Natural Resources pursuant to Special Conditions set forth under this Special Use Permit.
2. Permittee shall take all reasonable and prudent precautions to protect State Property, and hereby agrees to reimburse the State for any and all damages or other expenses incurred as a result of this event..
3. Permittee and all participants, spectators and volunteers waive and release all claims against the State of Minnesota, its officers and employees for any damage to personal or private property arising from the exercise of the rights and privileges granted herein. Permittee shall indemnify and hold-harmless the State and its assigns from all claims arising from the use of State Property whether arising from civil action or otherwise.
4. A performance bond of $10,000 shall be posted to ensure that all terms and conditions of this permit are met, and that any damages are properly repaired. Costs incurred by the DNR for supervising this event (e.g., mileage, overtime salary) may also be reimbursed from the performance bond at the DNR's discretion.
5. The State may revoke, cancel, suspend, or void this agreement at its' discretion.

ADDITIONAL TERMS & CONDITIONS (Attach additional sheets if necessary)

1. Permittee shall submit all contracts and subcontracts, upon request, for DNR review at least two (2) weeks prior to the scheduled event. All permit fees must be paid in full within 14 days of the event.
2. Permittee shall submit all promotional and marketing materials prior to the event for DNR review and approval.
3. Permittee shall carry tort liability insurance naming the State of Minnesota as co-insured in the amount of $250,000/person and $750,000/occurance. Additional licenses and insurance must be obtained covering the

sale of 3.2 percent beer or malt liquor. Proof of insurance shall be provided two (2) weeks prior to the event.

4. Permittee shall comply with all State Statutes pertaining to equal opportunity and human rights.
5. Permittee shall remove any signs, materials, equipment or temporary structures within seven (7) days following completion of the event and restore the area to pre-event conditions. The Facility Manager shall certify compliance with this provision.
6. Permittee shall provide temporary enforcement, traffic control and emergency medical services for this event.
7. Permittee shall provide off-site parking and shuttle service for this event.

SPECIAL USE PERMIT FEE

Special Use Permit Fee (Regular) _____
Performance Bond Requirement (Refundable) _____
Administrative Charges _____
Misc. Fees (describe) _____

TOTAL AMOUNT _____

_____

PERMITTEE (OR AGENT) NAME / TITLE / DATE (Please Print)

_____

PERMITTEE SIGNATURE / DATE

_____

DNR TRAILS & WATERWAYS / NAME / TITLE / DATE (Please Print)

_____

ADDITIONAL DNR APPROVALS / DATE

_____

ADDITIONAL DNR APPROVALS / DATE

_____

ADDITIONAL DNR APPROVALS / DATE

_____

ATTORNEY GENERAL'S APPROVAL AS TO FORMAT AND EXECUTION - SIGNATURE / DATE

[Based on DNR Operational Order #102, Approved May 22, 1994]

DEPARTMENT OF
NESOTA
NATURAL RESOURCES

APPENDIX I
IRON RANGE OHV RECREATION AREA
COMPARATIVE ANALYSIS OF PROJECT ALTERNATIVES

Botrychium rugulosum and B. pallidum

Sensitive plant surveys conducted during 1997 and 1998 revealed the presence of two state-listed plant species: *Botrychium rugulosum,* or the St. Lawrence Grapefern (threatened) and *Botrychium pallidum,* the Pale Moonwort (endangered). The plants were found growing in two tailings basins on the site that had been proposed for intensive motorized use and development, and scattered between the basins. This finding prompted redesign and reconfiguration of planned developments in both basins, and it triggered additional onsite surveys which mapped the *Botrychium* population distribution.

Existing *Botrychium* Populations and Site Conditions

The pale moonwort population at the proposed OHVRA site is found in an area of upland cover located just to the north of the Southwest basin, (Area B). During a site investigation conducted in May, 1998, about two-dozen individual pale moonwort specimens were observed. This indicates that the Gilbert population is significantly larger that any other population for which there is a recorded count. The total size of the population is not known, but the botanist who made the count estimated the total population at 50 to 100 individuals. It is almost certain that additional populations exist which have not yet been discovered. The number and size of such undiscovered populations is impossible to predict. The populations at the proposed OHVRA occur in two (2) batches located within an area of suitable habitat of approximately one acre in extent.

Parts of the site disturbed by mining activity provide habitat suitable for the establishment and maintenance of grapefern populations. Based upon four onsite surveys, the DNR estimates that Area A contains about 7.9 acres of identified grapefern habitat, (covering approx. 20% of the basin), and Area B contains an estimated 5.4 acres of identified grapefern habitat, (approx. 25% of the basin). An additional 25-30 acres of upland located between the basins is identified as potential grapefern habitat. The total population within the two basins and in the area located between the basins is thought to number between 200 - 500 individual plants. This estimate clearly makes the Gilbert population the largest of the nine Minnesota populations for which there are recorded population counts or estimates.

At the proposed OHVRA, approximately 40% of the grapeferns occur within Area A, 30% of the specimens occur within Area B, and the balance of the population (30%) is found in the upland area between basins A and B. The extent and population density of the listed grapeferns in the upland area is less certain because it has been surveyed less extensively than the in-basin populations. Grapefern populations within the basins are not evenly distributed, but are somewhat concentrated within available habitat. As such, there are habitat areas with relatively high numbers of ferns and other areas with relatively few ferns. Referencing Figure X.X the dark green area (of Basin A) contains approximately 80%-90% of the ferns in that basin, while the dark green area (of Basin B) contains approximately 70%-80% of the ferns present in that basin. Specimens may also be found on the periphery of both basins.

Maps and Tables

Table I-1 compares the impact of project alternatives on Botrychium populations and habitat within the two tailings basins located at the Gilbert Site. A series of maps *(I-1 through I-10)* which display various project design configurations is also provided in order to illustrate the location of the plant populations relative to the proposed development options.

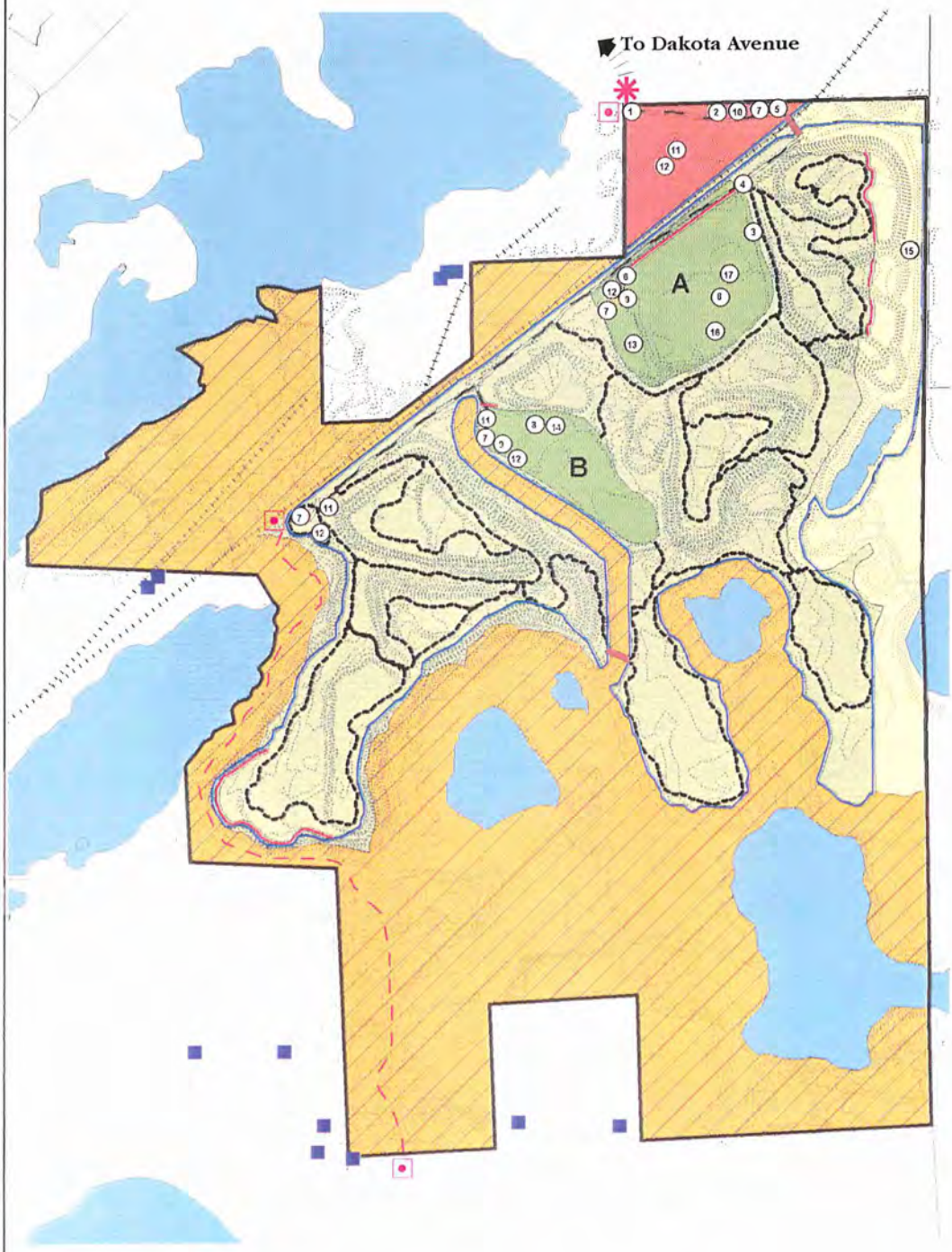
Table I-1 Iron Range OHV Recreation Area. Comparative Analysis of Project Alternatives Relative To St. Lawrence Grapefern Habitat Conversion and Proposed 'Taking'.

DESIGN / DEVELOPMENT ALTERNATIVE	Estimated Subsite Habitat Conversion (%)			Estimated Subsite Specimen Taking (%)			Estimated Subsite Taking Relative to Total Population (%)			Est. Total Population Taking (%)
	Area A	Area B	Extra-Basin	Area A	Area B	Extra-Basin	Area A	Area B	Extra-Basin	All Habitat
No Build	None	None	None	None	None	None	None	None	None	None
Preferred Alternative	100	100	None	100	100	None	40	30	None	70
Modified Plan	50	100	Variable	10	100	Variable	4	30	<10	44
Limited Plan, Option 1	50	None	None	10	None	None	4	None	None	4
Limited Plan, Option 2	50	None	None	10	None	None	4	None	None	4
Limited Plan, Option 3	50	74	Variable	10	20-30	Variable	4	6-9	<10	<20-23

Source: Minnesota Department of Natural Resources, July 1998. Excerpted from: "Iron Range Off-Highway Vehicle Recreation Area: Draft Environmental Impact Statement". Prepared by Environmental Review Section, Office of Management and Budget Services. St. Paul, MN 55155-4010.

Preferred Alternative

Proposed Iron Range Off-Highway Vehicle Recreation Area



Legend

- Project Site Boundary
- Main Entrance
- Bridge
- Staging/Main Parking
- Gates
- Noise Berms
- Fencing
- Backbone Trail Structure
- Emergency Access
- Main Interior Road (2-way)
- Existing Roads
- Railroad
- Lakes
- A B Special Event Areas/Parking
- ① Entrance Kiosk
- ② Entry Road/Control Booth
- ③ Corporate Yard
- ④ Vehicle Wash-Off Area
- ⑤ Administration/Security/Paramedic Building
- ⑥ Clubhouse/Classroom/Interpretive Center
- ⑦ Restrooms/Sanitary Facilities
- ⑧ Scoring/Official Towers
- ⑨ Concessions
- ⑩ Motorcycle/ATV Storage
- ⑪ Day Use Area
- ⑫ Parking/Staging Areas
- ⑬ Training Areas
- ⑭ Motocross
- ⑮ 4x4 Obstacle Course (Rockcrawl)
- ⑯ Sand/Mud Drags
- ⑰ Pit Area
- No Motorcycle or ATV Use
- No OHV Use
- Trail Area
- Buildings

LSA

N

500 0 500 1000 1500 Feet

September 1997

Sources:
Reactions, OHV Consulting
LSA Associates, Inc.
J.J. Van Houten & Associates
Minnesota Dept. of Natural Resources, Trails & Waterways Unit
Waters Division

St. Lawrence grapefern

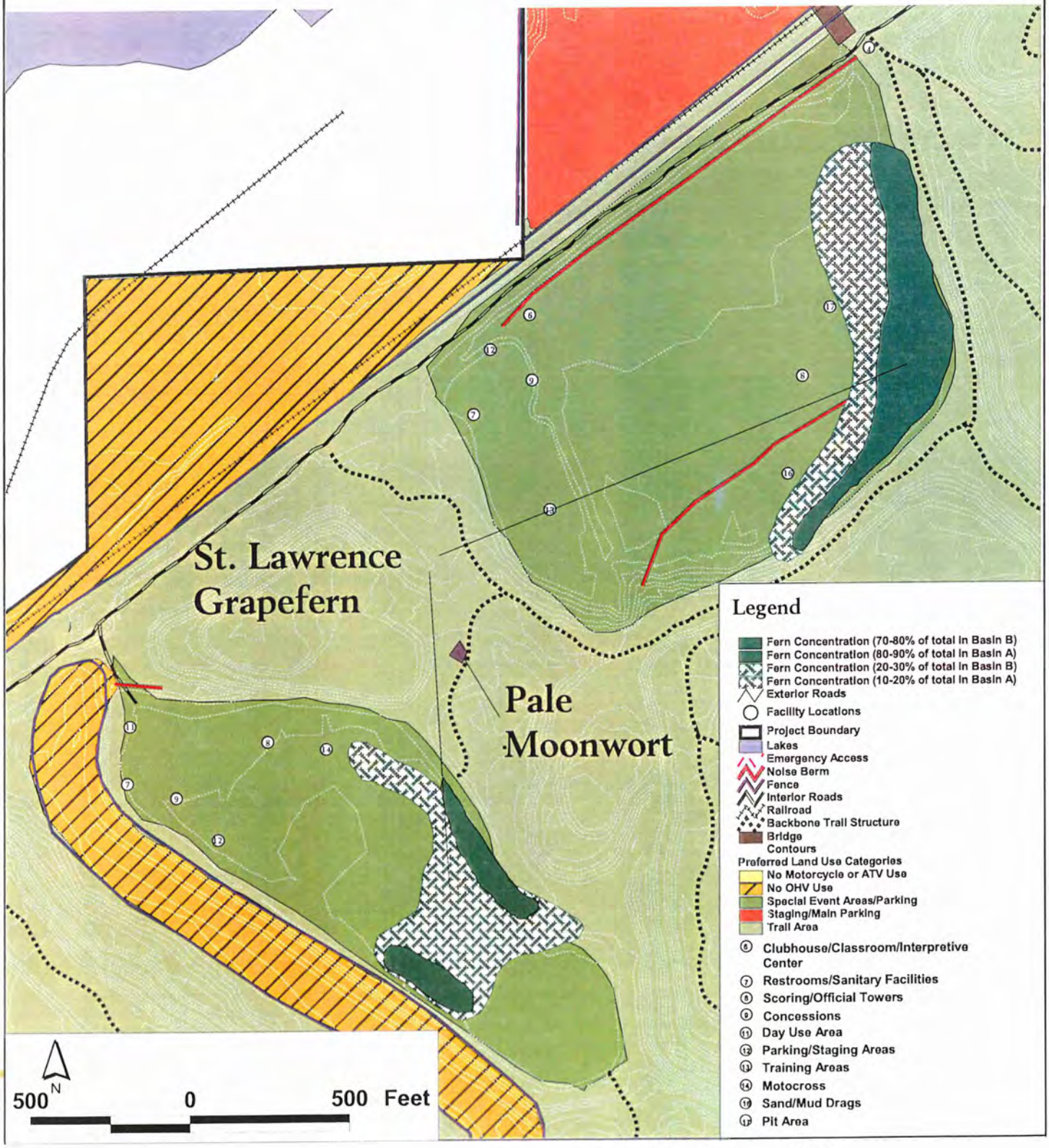
MN DNR, Ecol Sys Section, 1997.

Pale Moonwort

MN DNR, Ecol Svs Section, 1997.

Site Design/Development
Fern Distribution

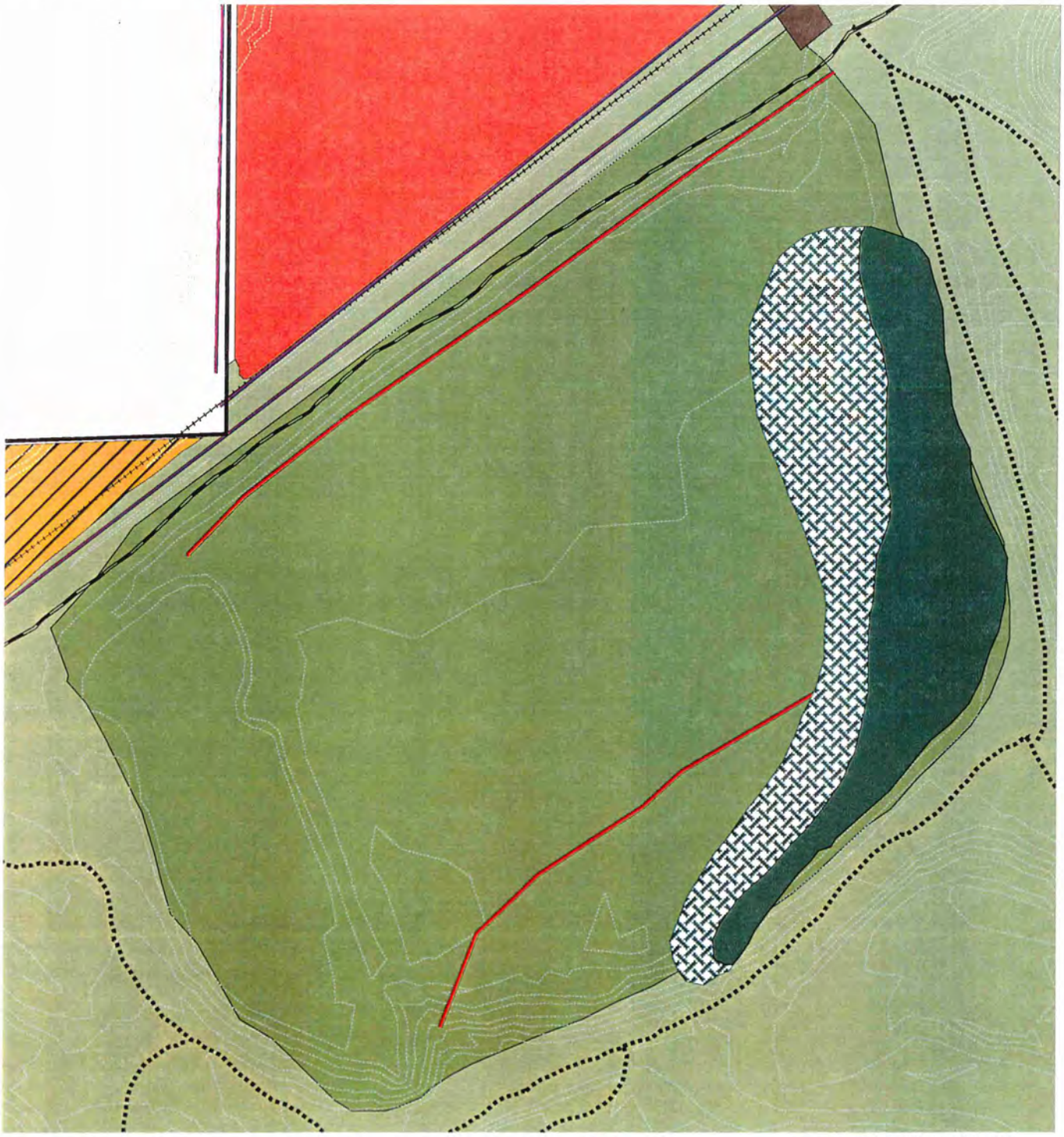
Proposed Iron Range Off-Highway Vehicle Recreation Area



Source: DNR Ecol. Sys Section, 1997.

Fern Grove in Basin A

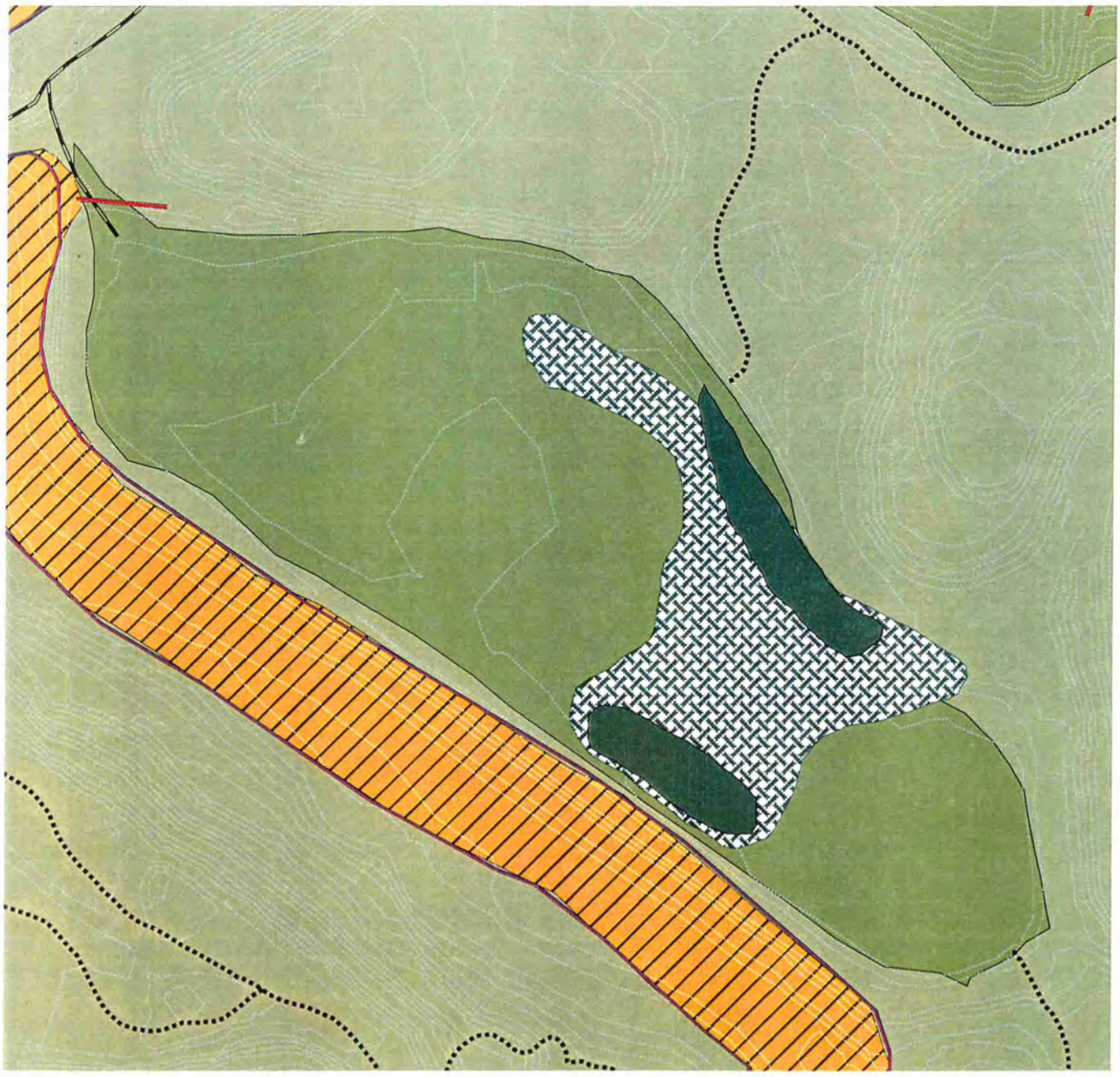
Proposed Iron Range Off-Highway Vehicle Recreation Area



Source: DNR Ecol. Sys Section, 1997.

Fern Grove in Basin B

Proposed Iron Range Off-Highway Vehicle Recreation Area



Fern Concentration (70-80% of total in Basin B)
Fern Concentration (20-30% of total in Basin B)

Exterior Roads
Project Boundary
Lakes
Emergency Access
Noise Berm

Fence
Interior Roads
Railroad
Backbone Trail Structure
Bridge
Contours

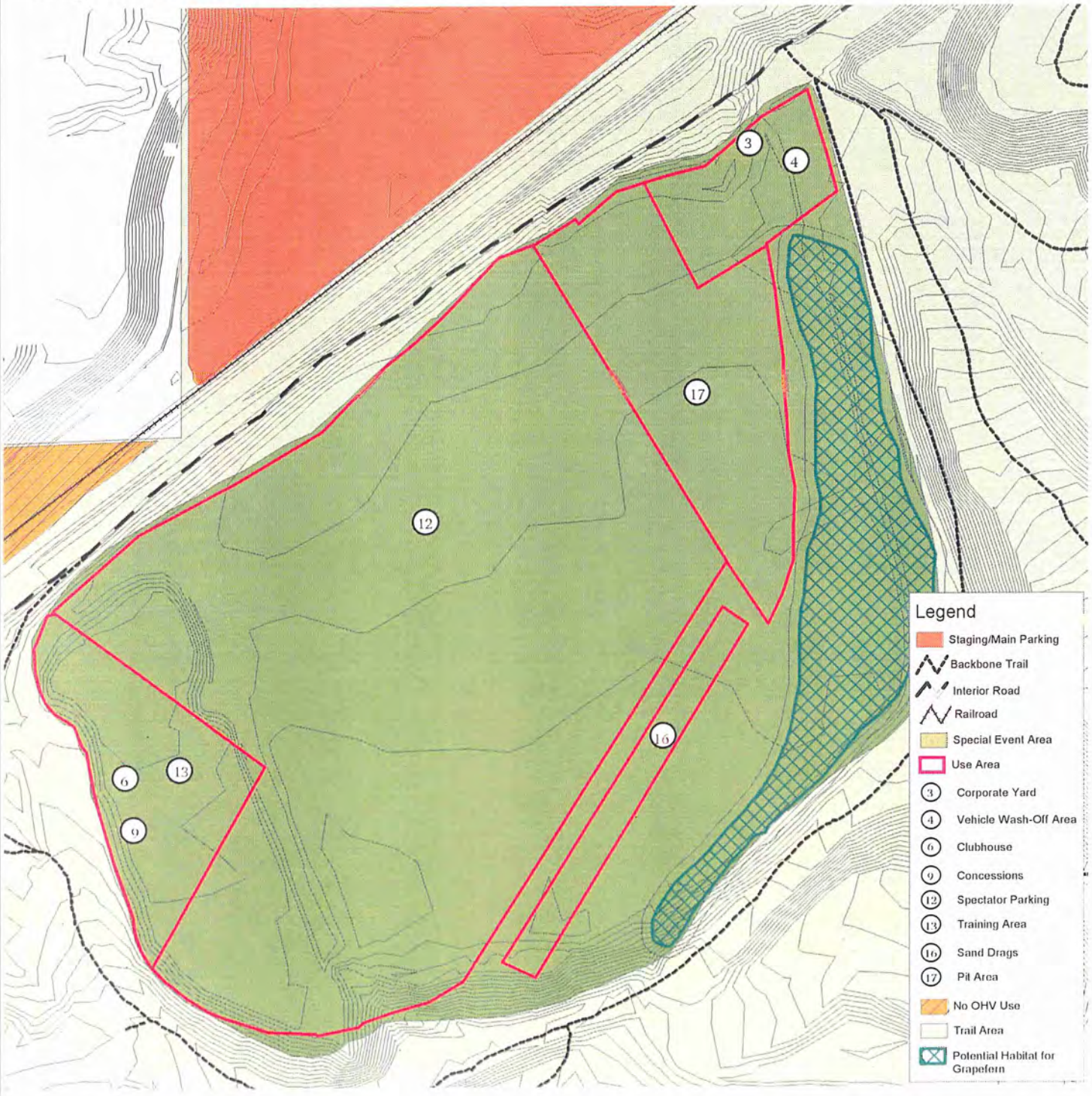
Preferred Land Use Categories
No Motorcycle or ATV Use
No OHV Use
Special Event Areas/Parking
Staging/Main Parking
Trail Area

N

300 0 300 Feet

Source: DNR, Ecol. Services Sect., 1997.

Preferred Alternative Plan #1
Total Avoidance of Grapefern
Area A - Northeast Basin
Proposed Iron Range Off-Highway Vehicle Recreation Area



LSA

N

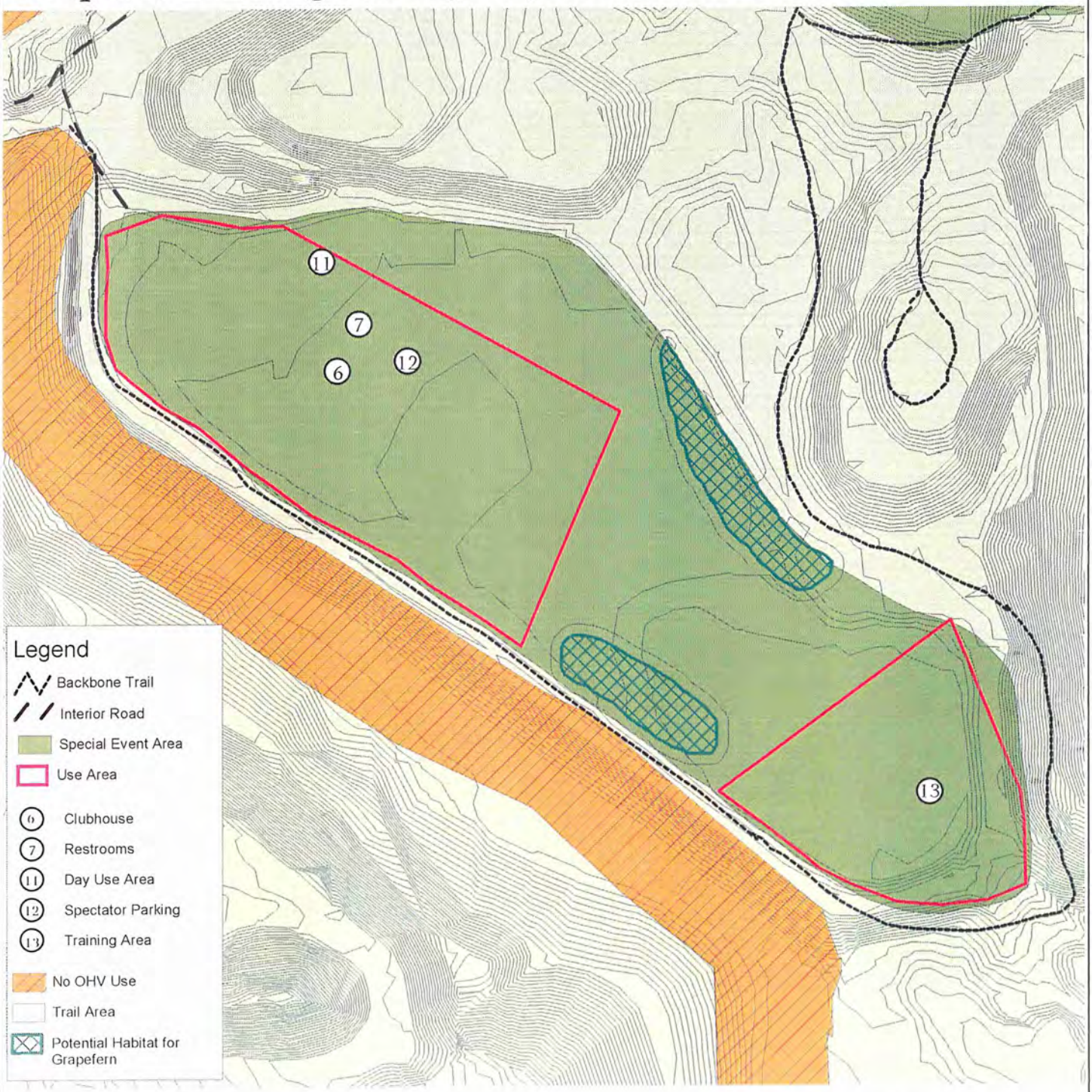
-50 0 50 100 150 200 250 Feet

May 1998

Sources:
Reactions, OHV Consulting
LSA & Associates, Inc.
Minnesota Dept. of Natural Resources
Trails & Waterways Unit

Preferred Alternative Plan #2
Total Avoidance of Grapefern
Area B - Southwest Basin

Proposed Iron Range Off-Highway Vehicle Recreation Area



LSA

N

-50 0 50 100 150 200 250 Feet

May 1998

Sources:
Reactions, OHV Consulting
LSA & Associates, Inc.
Minnesota Dept. of Natural Resources
Trails & Waterways Unit

Preferred Alternative Plan #3
Total Avoidance of Grapefern
Area A - Northeast Basin
Proposed Iron Range Off-Highway Vehicle Recreation Area

LSA

N

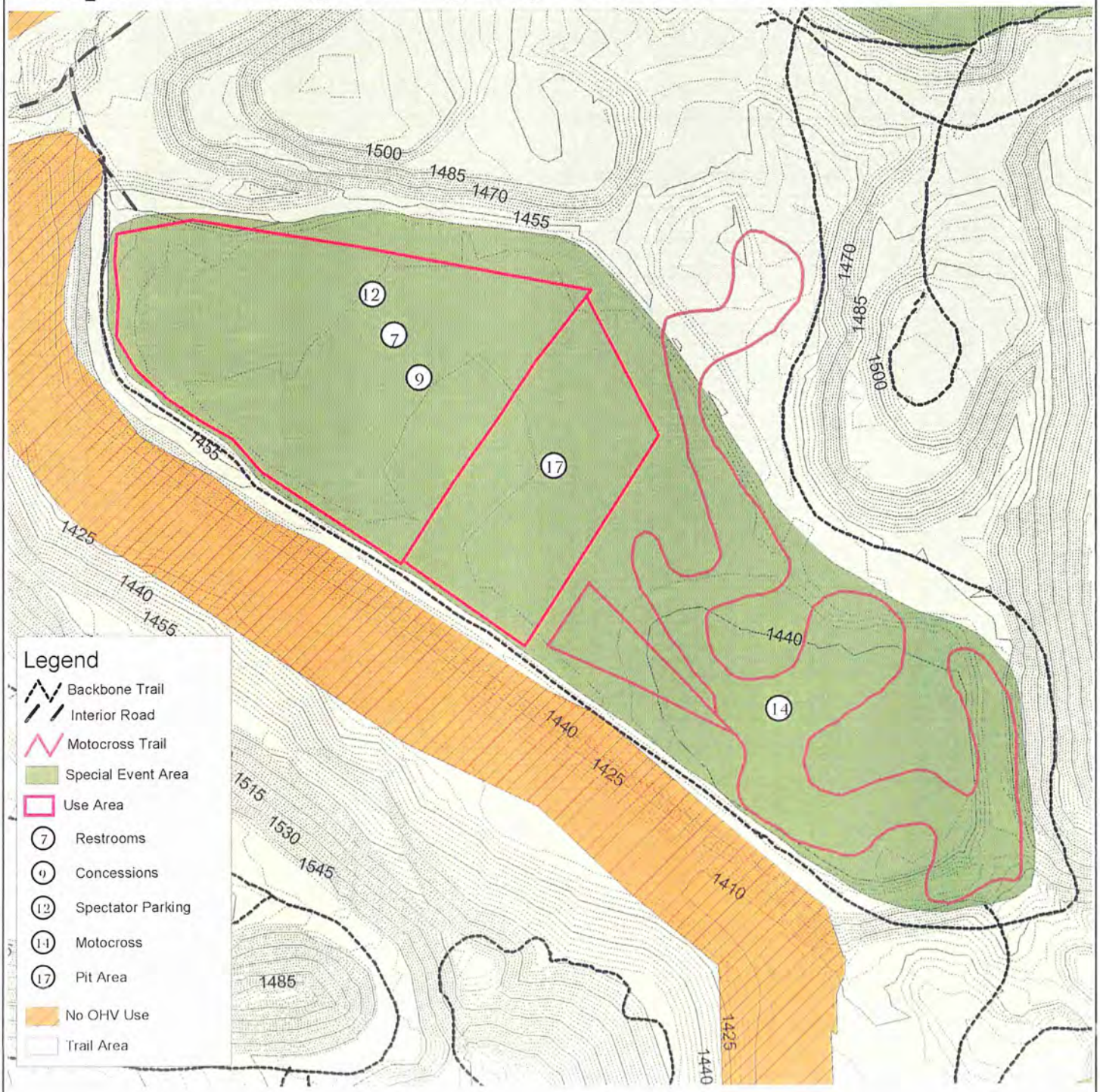
50 0 50 100 150 200 250 Feet

May 1998

Sources:
Reactions, OHV Consulting
LSA & Associates, Inc.
Minnesota Dept. of Natural Resources
Trails & Waterways Unit

Preferred Alternative Plan #4 and Partial Taking of Grapefern Area B - Southwest Basin

Proposed Iron Range Off-Highway Vehicle Recreation Area



LSA

N

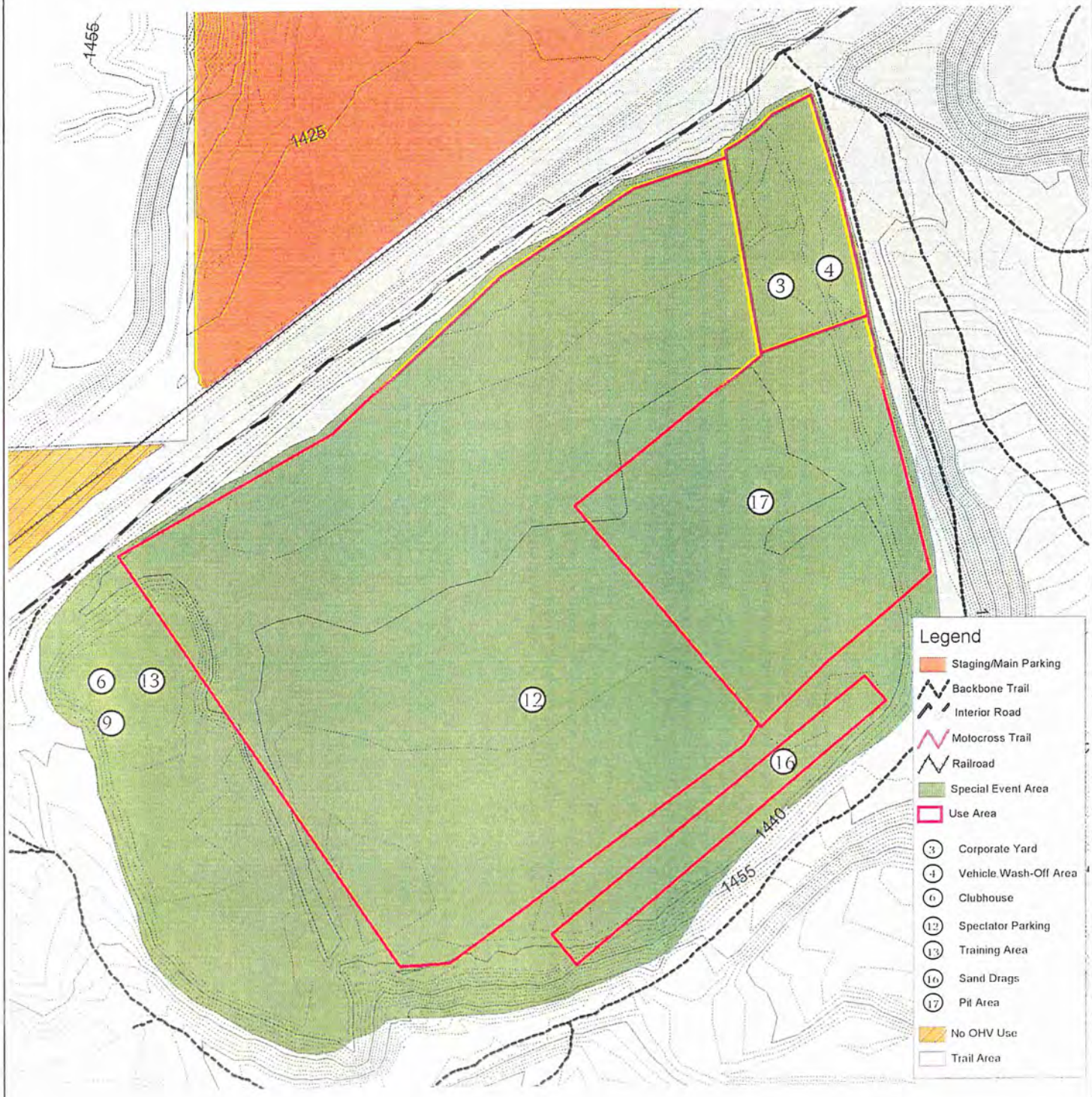
0 0 50 100 150 200 250 Feet

April 1998

Sources:
Reactions, OHV Consulting
LSA & Associates, Inc.
Minnesota Dept. of Natural Resources
Trails & Waterways Unit

Preferred Alternative Plan #5
Area A - Northeast Basin

Proposed Iron Range Off-Highway Vehicle Recreation Area



LSA

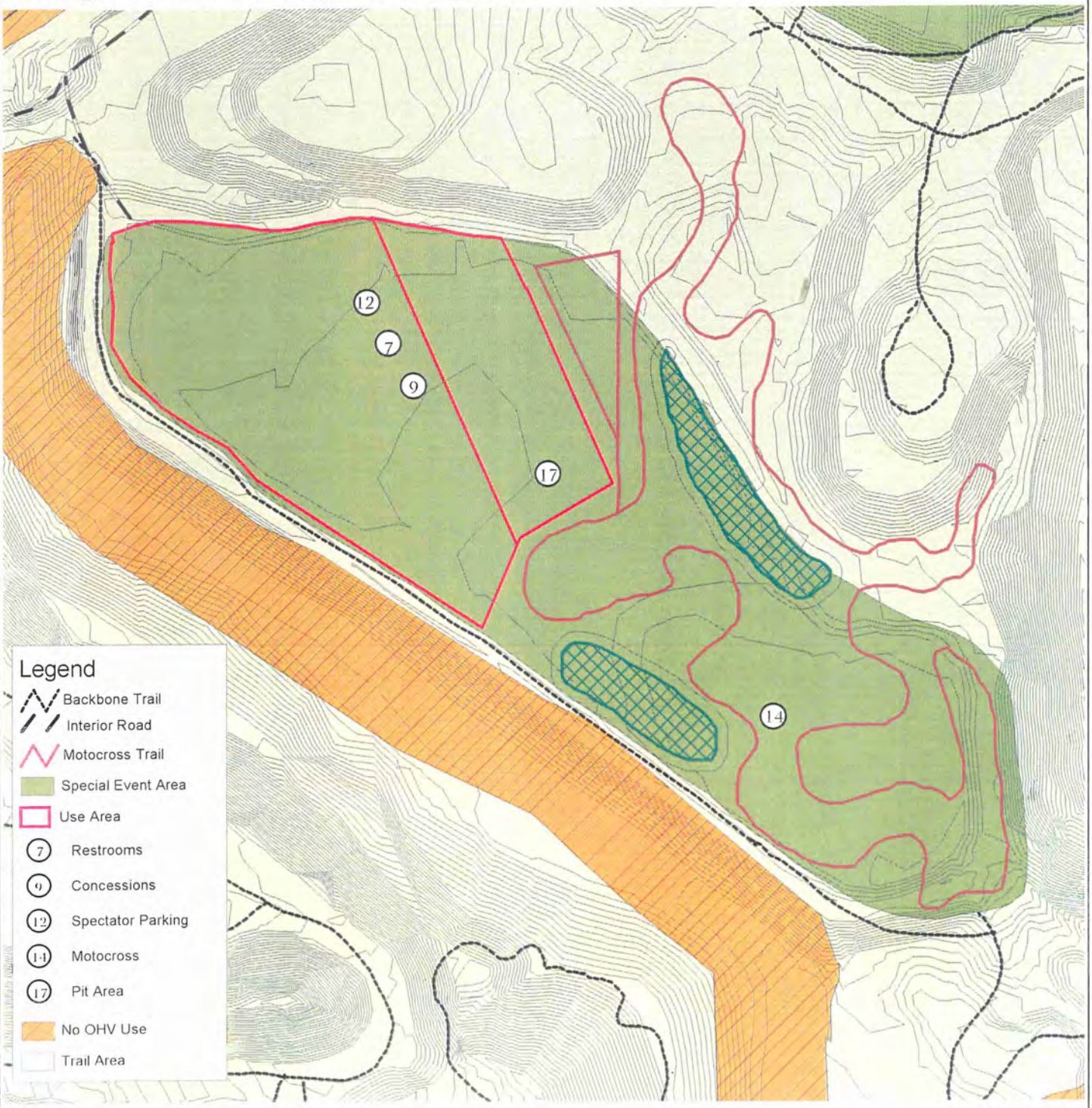
N

100 0 50 100 150 200 250 Feet

April 1998

Sources:
Reactions, OHV Consulting
LSA & Associates, Inc.
Minnesota Dept. of Natural Resources
Trails & Waterways Unit

Preferred Alternative Plan #7
Total Avoidance of Grapefern
Area B - Southwest Basin
Proposed Iron Range Off-Highway Vehicle Recreation Area



LSA

N

-50 0 50 100 150 200 250 Feet

May 1998

Sources:
Reactions, OHV Consulting
LSA & Associates, Inc.
Minnesota Dept. of Natural Resources
Trails & Waterways Unit