ConCept Master plan
Final report
March 2010
Prepared by:
Center for Rural Design, University of Minnesota

Vermillion Highlands
A Research, Recreation and Wildlife Management Area

Prepared for:
Vermillion Highlands Steering Committee
- Minnesota Department of Natural Resources
- University of Minnesota
- Dakota County
- Empire Township
VERMILLION HIGHLANDS
A RESEARCH, RECREATION AND WILDLIFE MANAGEMENT AREA

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This report is prepared for
Vermillion Highlands Steering Committee
- Minnesota Department of Natural Resources
  Joe Kurcinka
  Bob Welsh
- University of Minnesota
  Charles C. Muscoplat
  Al Sullivan (January 2007 - August 2008)
  Deborah Swackhamer (September 2008 - present)
- Dakota County
  Lynn Thompson
  Michelle Beeman
- Empire Township
  Terry Holmes
  Dean Johnson

Study Team Members/ Roles:
Principal Investigator:
- Dewey Thorbeck, Director, Center for Rural Design

Center for Rural Design Team Members:
- Steve Roos, Senior Research Fellow, Project Manager
- Tracey Kinney, Research Fellow
- Stephen Streng, Research Fellow
- Zach Jorgensen, Research Assistant
- Peter Dahlberg, Research Assistant

In collaboration with:
Vermillion Highlands Operations Committee
- Robert Fashingbauer, Minnesota Department of Natural Resources
- Forrest Izuno, Rosemount Research and Outreach Center and the Office of Statewide Strategic Resource Development / UMore Park, University of Minnesota
- Steven Lott, Rosemount Research and Outreach Center and the Office of Statewide Strategic Resource Development / UMore Park, University of Minnesota
- Steve Sullivan, Dakota County Parks and Open Space Department
- Jeff Hince, Empire Township

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Center for Rural Design
College of Design, and
College of Food, Agricultural, and Natural Resource Sciences
University of Minnesota
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Background

Vermillion Highlands: A Research, Recreation and Wildlife Management Area (referred to as Vermillion Highlands throughout this document) was established in 2006 by the Minnesota Legislature and Governor Tim Pawlenty. *Creating Common Ground*, a January 2007 report to the legislature, outlines the agreement for joint management by the University of Minnesota and the Minnesota Department of Natural Resources (MN DNR), in conjunction with Dakota County, for the 2,840-acre parcel adjacent to the University of Minnesota Outreach, Research and Education (UMore) Park. The land is designated as a research, recreation and modified wildlife management area (WMA) that balances University research, education and public engagement; public access for diverse, high-quality recreation; and wildlife management and hunting.

*Creating Common Ground* identified the need to develop a concept master plan for land use and management. Since Dakota County and the MN DNR were involved in purchasing additional property (the Butler Property) to the west of Vermillion Highlands for a Dakota County Regional Park and expanded WMA, it was decided to engage in a three-party partnership to develop the concept master plan for Vermillion Highlands. The scope of the concept master plan was broadened to examine the connectivity between Vermillion Highlands and adjacent public open-space properties to capitalize on opportunities for synergistic management and land use for the public good.

Recognizing the need to incorporate the perspectives of adjoining jurisdictions, in December 2009 Empire Township was invited to become a member of the Steering Committee of Vermillion Highlands through a written
amendment by the MN DNR and University of Minnesota, and signed by Empire Township, to include Empire Township in the oversight of the land.

The name - Vermillion Highlands: A Research, Recreation and Wildlife Management Area - was selected per the agreement by the University of Minnesota and the MN DNR, documented in Creating Common Ground, to reflect the joint management goal and to distinguish the parcel from other University property.

In keeping with the identified need to develop a cohesive plan for Vermillion Highlands, in October 2007 the three original parties selected and contracted with the Center for Rural Design at the University of Minnesota to develop a concept master plan for Vermillion Highlands. The Center was excited by the challenge to develop a model multi-jurisdictional concept master plan for Vermillion Highlands and the connectivity with the future UMore Park community, MN DNR, Dakota County, Empire Township and City of Rosemount. It was an ideal inter-collegiate research effort at the urban/rural edge reflecting the Center’s mission and an opportunity to include graduate students in the planning process.

The concept master plan is intended to reflect the unified sustainability goals of the organizations represented on the Steering Committee and their respective strengths and interests. The concept master plan establishes a contemporary vision for how Vermillion Highlands will be managed, used and improved, along with an implementation strategy to achieve the vision. The Steering Committee provides overarching guidance for the three mandated uses of the property that are addressed in the concept master plan:

- **Research.** Research opportunities at Vermillion Highlands are open to faculty members and students from across the University of Minnesota system and their collaborators. Research, planning and operations are coordinated by the Head of the Rosemount Research and Outreach Center (RROC) under the auspices of the Office of the Dean of the College of Food, Agricultural and Natural Resource Sciences (CFANS).

- **Recreation.** Natural resource-based recreation, open space preservation, greenway connectivity and environmental education at Vermillion Highlands are integrated with Dakota County parks and open spaces via the Dakota County Parks and Open Space Department.

- **Wildlife management area.** Environmental preservation and protection, wildlife management and related educational opportunities are coordinated by the MN DNR and include a focus on high-quality hunting and trapping opportunities.
Priorities and Process

Minnesota has a deep-seated heritage in, and appreciation for, its rural landscape. Vermillion Highlands is a unique site within the greater Twin Cities metropolitan area which offers a rare opportunity to celebrate our rural heritage within the rapidly expanding metropolitan region. Vermillion Highlands should be maintained in a manner that preserves its existing rural character.

The mix of agriculture and natural open space provides opportunities for a full range of nature-based recreational activities, including high-quality hunting. The concept master plan identifies agricultural field research by University of Minnesota faculty and staff on at least 1,000 acres or more of land containing approximately 560 acres of prime agricultural soils as classified by the Natural Resources Conservation Service in their latest Soil Survey Geographic (SSURGO) soil database. The available prime soils are dispersed throughout the 1,000 acres in various sized parcels. These research and outreach activities will continue to be managed through the RROC in collaboration with the Vermillion Highlands Operations Committee.

The remainder of the land is dedicated to wildlife management with environmental research and habitat restoration identified as primary priorities. A few key corridors and landmarks are designated for diverse, nature-based recreation that optimizes opportunities for broad public use in a manner that is compatible with the first two priorities. The full extent of Vermillion Highlands is open to University research in partnership with the MN DNR, Dakota County and Empire Township.

Since the property is located in Empire Township, meetings with the township planner and town board chair were held to identify and accommodate the short- and long-term goals of the township. Additional meetings were held with Dakota County Transportation, the Advisory Council on Comprehensive Planning and the City of Rosemount to identify land use concerns.
and transportation needs. To maximize the relationship with adjoining properties, it was essential to coordinate the planning for Vermillion Highlands with the planning for UMore Park being accomplished by Design Workshop, Inc. of Aspen, Colorado and Hoisington Koegler Group, Inc. of Minneapolis. The Center for Rural Design worked closely with the UMore Park design team to seamlessly integrate the two concept plans.

Public Engagement
During summer and fall of 2008, the draft concept master plans for both UMore Park, Vermillion Highlands, adjacent Dakota County Regional Park and MN DNR WMA land were presented together at public meetings to the Regents of the University of Minnesota, MN DNR, Dakota County Board of Commissioners, Empire Township Board, City of Rosemount and the Metropolitan Council. Additionally, a series of community and University campus forums were held. Input from these forums was integrated into the planning process and is reflected in the final concept master plan shown in illustrations 2 and 3 at the end of this report.
Vermillion Highlands was established as a research, recreation and wildlife management area to accommodate the collaborative vision in the agreement between the University and the MN DNR, in conjunction with Dakota County and Empire Township. The collaborative vision is defined as a partnership between the University, the MN DNR, Dakota County and Empire Township. Design principles were adopted by the Steering Committee established by the agreement and intended to guide the planning and management of the property. The principles are embedded in the preferred scenario and consist of:

1. Vermillion Highlands will be managed by the Vermillion Highlands Steering Committee through the Vermillion Highlands Operation Committee to maintain or improve its current environmental character and level of ecological function with the goal to achieve the best ecological fit within the greater context of the site.

2. Vermillion Highlands will be managed collaboratively to meet the programmatic needs of the partners.

3. Vermillion Highlands will be managed to provide maximum research, outdoor recreation opportunities and Wildlife Management Area goals such as hunting and trapping.

4. Vermillion Highlands will be managed to locate programmatic uses in a manner that best supports these principles. Within this context, agricultural plot research and more intensive public recreational and educational uses will generally be oriented toward the site’s northern portions. More extensive wildlife management supporting hunting and trapping will generally be oriented toward the south and east.

5. The partnership will allow for flexible and responsive management of Vermillion Highlands to maximize user compatibility, optimize opportunities for public use and avoid public confusion.

6. Joint management of Vermillion Highlands by the University and the MN DNR in conjunction with Dakota County and Empire Township will assure a broad range of research, diverse and high-quality recreation uses and public hunting opportunities.
The principles are intended to guide the development of a concept master plan and give direction to the ongoing management of Vermillion Highlands to provide the greatest possible benefit to the region and state.

7. Vermillion Highlands will be managed to support continued environmental connections within its greater context and encourage neighbors to maintain and enhance those connections.

8. Vermillion Highlands will be managed to support social and cultural connections with the broader region.

9. All existing and any proposed new infrastructure within Vermillion Highlands will be maintained, designed and located in keeping with these principles in regard to environmental character and ecological function. For example, existing roads may be removed, relocated or have limited access. New infrastructure will ideally be focused at the perimeter of the site. Adjacent and containing jurisdictions will be encouraged to plan infrastructure improvements and roads that respect the purpose and integrity of Vermillion Highlands.

10. Vermillion Highlands will be managed both spatially and temporally to achieve the best possible fit of divergent and/or competing programmatic uses both within and adjacent to the site.

11. Appropriate planning and design will provide the tools to accomplish the goals set forth within these principles.

12. Animal and plant species designated as threatened or endangered by the state or federal government will have priority consideration in wildlife management and other land management activities.
Preferred Scenario

The preferred scenario for Vermillion Highlands resulted from working with the four-party partnership at two levels. The first level is the Vermillion Highlands Operations Committee, which is concerned with the day-to-day operations of Vermillion Highlands. The second level is the Vermillion Highlands Steering Committee, which is the official representative and decision-making body of the four parties. The design process explored a series of five alternative scenarios. Each was reviewed and evaluated for its ability to organize the land to provide maximum opportunity for University research, integrated public recreation, habitat restoration and wildlife management. All scenarios were based on the twelve principles approved by the Steering Committee.

The preferred scenario for Vermillion Highlands is defined by intensity of use. The highest intensity use is focused in the northwestern corner of Vermillion Highlands adjacent to the proposed regional park and development in UMore Park. The eastern and southern portions are intended for lower intensity use to support the goals of habitat restoration and wildlife management. The scenario also recognizes:

- Opportunities for environmental connections to the north through UMore Park to the Mississippi River and for environmental connections to the Vermillion River to the south.

- Opportunities for north/south regional recreational connections from Lebanon Hills Regional Park to and along the Vermillion River, including bicycle and hiking trails, a river-use area and fishing, are designed to compliment the natural environment and wildlife.

- A need for flexibility in land-use management along the boundary between Vermillion Highlands, the new regional park and UMore Park to accommodate mutually beneficial goals.
Concept Master Plan Components
The preferred concept master plan for Vermillion Highlands has a number of specific recommendations to accommodate the needs of each of the parties to enhance research, recreation and hunting:

- At least one thousand acres have been designated for University agricultural research activities. The entire 2,840 acres of Vermillion Highlands are available for University research, conducted within the property management goals.

- Visitor/Research/Interpretive/Administrative facilities will be provided at two locations to serve the combined needs of the partners. The facilities could provide private office and conference space for joint-management uses and individual use for WMA staff, regional park staff and University researchers. The facilities will also include garages, sheds and other necessary storage to accommodate equipment and supplies, as needed.
  * The Rosemount Research and Outreach Center complex is along County Road 46 on open space dedicated by the University in its concept master plan. It will be a high-quality architectural and sustainability icon for UMore Park as well as Vermillion Highlands and include:
    - Research facilities.
    - Interpretive center, nature center, demonstration areas and an informational kiosk.
    - Educational classrooms and auditorium to meet the needs of the various programs of the partners.
    - Trail head for access to a regional trail/greenway connecting Lebanon Hills Regional Park to the Vermillion River.
  * The trailhead complex, with access from Station Trail Road via 170th Street, is located jointly in the northwest corner of Vermillion Highlands and the adjacent new regional park or, alternatively, completely within the park. This site will provide access to both Vermillion Highlands and the regional park and will serve the following functions:
    - A trailhead for Dakota County’s regional park that includes parking, wayfinding signage, toilet facilities and four-season, general-use, public assembly space.
    - Provide access to park trails, equestrian trails, the regional trail and hiking throughout Vermillion Highlands.
    - Possibly provide several buildings for equipment storage, and repair shops for University research and park operations.
    - Other possible facilities to meet potential partnership needs.

- Dakota County, University of Minnesota, City of Rosemount and Empire Township have concurrently prepared a transportation study that identifies future transportation corridors in the vicinity of Vermillion Highlands and UMore Park. Most importantly the transportation study results in only minimal impact to Vermillion Highlands, proposing a north/south
transportation corridor adjacent to, and minimally located on, the eastern boundary of the property. The transportation study also integrates the proposed trail system and greenway corridors of the concept master plan, resulting in complementary pedestrian and wildlife movement via grade-separated crossings. The study recommends context sensitive roadways that complement the visual quality of the rural and natural landscape. It was also determined that local road alignment, when needed, will be coordinated with the local units of government.

- The existing private shooting range will remain in the same approximate location. However, in collaboration with the Dakota County Gun Club, the intent is to expand the scope of services provided to the general public at this facility to increase opportunities for gun sighting, target practice, youth hunter training programs and other possible programs fitting within the scope and scale of the facility. None of these potential opportunities and/or programs have been defined or developed at this time. As permit issuer for the facility, Empire Township will be consulted during the process of formulating any operational changes.

- New equestrian trails will be relocated into the northwestern portion of Vermillion Highlands to separate equestrian use from other uses. The equestrian trail would be dedicated to equestrian use and remain open year-round except for required maintenance.

- Current existing trails in the rest of Vermillion Highlands will remain and be maintained as naturalistic soft-surfaced trails for hiking and cross-country skiing only. Access to historic Lone Rock would be provided by hiking trail only. Trail alignments, lengths and accessibility may be adjusted as deemed necessary by the Vermillion Highlands Steering Committee.

- It is recommended that the current Grant-in-Aid snowmobile trail that crosses the southern portion of Vermillion Highlands be rerouted outside the boundaries of the site along 200th Street.

- Vermillion Highlands will be managed to provide some form of hunting and/or trapping throughout the site as deemed suitable by the Vermillion Highlands Steering Committee. In practice, this scenario attempts to provide full and unrestricted hunting/trapping opportunities to the greatest extent possible throughout the southern and eastern portions of the site in the manner of a WMA, while the northwestern portions of the site will require hunting to be managed to accommodate other uses for reasons of safety.
Management Concept

Vermillion Highlands and the adjacent Dakota County regional park are intended to be co-operatively managed adhering to the principles and goals established in the concept master plan. Day-to-day operations and management will be accomplished via the Vermillion Highlands Operations Committee. Operational policy will be forwarded to the Steering Committee for consideration.

The intention of the management structure is to allow flexibility within the guidelines of the legislation to alter land uses and improve operational methods to maximize the site’s use for a range of University research activities, a variety of recreational and environmental activities and as a modified wildlife management area.

This management concept may lead to a recommendation to accomplish some alteration of the property lines between Vermillion Highlands, UMore Park and the regional park for mutual benefit. This alteration may require updating the concept master plan and legislative approval.
The Concept Master Plan is manifested in the attached drawings that illustrate the plan, regional context and relationships, primary research uses, general recreational uses, hunting and trapping opportunities, and intensity of use:

• Illustration 1 – A map showing the regional context of Vermillion Highlands in Dakota County including:
  * Major highways and roads.
  * Vermillion Highlands’ relationship to Lebanon Hills Regional Park, UMore Park, the new regional park, Empire Township and aggregate mining.
  * Vermillion Highlands’ relationship to neighboring jurisdictions including Empire Township, the City of Rosemount and the City of Coates.
  * Vermillion Highlands’ relationship to Dakota County Technical College (DCTC), Flint Hills Resources’ Pine Bend Refinery and Metropolitan Council Waste Treatment Facility land.
  * Vermillion Highlands’ relationship to the Vermillion River and Mississippi River.

• Illustration 2 – A map showing proposed regional connections and land-use zones including:
  * A regional trail extending from Lebanon Hills Regional Park south to the Vermillion River.
  * A regional greenway/trail corridor along the Vermillion River.
  * The relationship of Vermillion Highlands to UMore Park.
  * Roads and access points and proposed relocated snowmobile trail.

• Illustration 3 – A map showing the concept master plan for Vermillion Highlands. It identifies:
  * Existing environmental corridors and drainage ways that warrant preservation and restoration.
  * Vermillion Highlands’ land uses including the primary University agricultural research area, the primary wildlife management area and the new regional park.
  * Trail head and vehicular access points.
  * Conceptual locations for the equestrian trail, hiking and ski trail, regional bicycle trail and relocated snowmobile trail.
  * Lone Rock and Little Lone Rock historic sites.
  * Open-space connections north to UMore Park and Mississippi River, and south to the Vermillion River.
  * The Rosemount Research and Outreach Center location is shown in UMore Park adjacent to the proposed regional trail from Lebanon Hills Regional Park to the Vermillion River.
Illustration 4 – A map showing the concept master plan land-use zones along with a description of general land cover features and land-use objectives in each zone.

Illustration 5 – A map showing the range of research opportunities in each zone with a generalized description of research management objectives.

Illustration 6 – A map showing recreational opportunities intended in each zone with a generalized description of recreation management objectives.

Illustration 7 - A map showing hunting and trapping opportunities intended in each zone with a generalized description of hunting management objectives.

Illustration 8 - A map showing the intensity of human use intended in each of the zones.

Illustration 9 - A map identifying two primary zones within Vermillion Highlands, each with its own management priorities.

Illustration 10 - A map depicting the location of a collaborative research area dedicated to a joint effort between the University and MN DNR.

Illustration 11 - A map identifying refinements to the equestrian trail, Lone Rock hiking trail, trail, access to the Dakota County regional park and access points to a future regional recreation trail.