

**Environment and Natural Resources Trust Fund  
2010 Request for Proposals (RFP)**

**LCCMR ID: 199-F**

**Project Title:**

Glendalough Academy: An Environmental Education & Stewardship Model

**LCCMR 2010 Funding Priority:**

F. Environmental Education

**Total Project Budget: \$** \$118,012

**Proposed Project Time Period for the Funding Requested:** 2 years, 2010 - 2012

**Other Non-State Funds: \$** \$0

**Summary:**

Glendalough Academy is a partnership between I.S.D. #542/Glendalough State Park utilizing environmental education as catalyst to inspire scientific reasoning, critical thinking, leadership, and stewardship among students. [Capital project]

**Name:** Jeff Drake

**Sponsoring Organization:** I.S.D. #542, Battle Lake Public School

**Address:** 402 W Summit St  
Battle Lake MN 56515

**Telephone Number:** (218) 864-5215

**Email:** jdrake@battlelake.k12.mn.us

**Fax:** (218) 864-8651

**Web Address:** http://www.battlelake.k12.mn.us

**Location:**

**Region:** NW

**County Name:** Otter Tail

**City / Township:** Battle Lake / Everts Township

_____ Knowledge Base	_____ Broad App.	_____ Innovation
_____ Leverage	_____ Outcomes	
_____ Partnerships	_____ Urgency	_____ TOTAL

## PROJECT TITLE: Glendalough Academy: An Environmental Education & Stewardship Model

### I. PROJECT STATEMENT

Battle Lake Public School and Glendalough State Park entered a unique partnership in the fall of 2008 known as the Glendalough Academy. The 2008-2009 school year saw us pilot this academy concept and the initial results are both very promising and exciting. Glendalough Academy strives to develop scientific reasoning, data analysis, and problem solving skills among students through experiential learning within the context of environmental education. Through an innovative agreement with the park, the school intends to utilize the resources at Glendalough as a natural extension of the classroom. This project will help support the planning and implementation of comprehensive and on-going learning opportunities designed to instill and develop the qualities of leadership, citizenship, and a heightened sense of responsibility towards environmental stewardship among our students. We also anticipate a residual benefit of increased life-long park use among participants. The purpose of this request is to secure funds to further develop this program by renovating a historic carriage house that is part of the park facilities into a science classroom/lab and to purchase testing equipment necessary to analyze water, soil and other aspects of Glendalough's diverse ecosystem.

Responsible stewardship of our environment is a vital part of our local economy and recreational pastimes. For us, water and our area ecosystem represents more than a basic necessity of life. Our local economy is dependent on water maintaining its place as our community's most valuable resource. Our state also has a vested interest in developing and renewing the level of interest in outdoor activities among our youth. A study by Tim Kelly of the Minnesota DNR published in 2007, cites concerns that the younger generation is not as involved in outdoor recreational activities as their predecessors. From 2000 through 2005, fishing declined by over 5% among Minnesota youth ages 16 through 24 and declined nearly 15% among the same age group for hunting. Coupled with an aging demographic and a growing urban population, there is cause for some concern.

The project would involve transporting students to Glendalough State Park on a regular basis. We have created a unique modified-block schedule specifically to accommodate our curricular goals at Glendalough. The park is located three miles from the school and offers an environment that includes six lakes, deciduous forest, and natural prairie. The park provides the chance to conduct water quality testing on four lakes that are connected by a small stream, a heritage lake where motorized watercraft are prohibited and an autotrophic lake created by feedlot runoff. The presence of deciduous forest and natural prairie lend themselves to the study of a wide variety of plant and animal species.

Environmental observation and research would be conducted by the students in the following classes: Life Science (Grade 7), Earth Science (Grade 8), Biology (Grade 10), Advanced Earth Science (Grade 11), Environmental Science (Grades 11 & 12), Wildlife Management (Grades 11 & 12), and Advanced Biology (Grade 12). Students progressing through this series of classes would graduate with advanced critical thinking and reasoning skills and a holistic view of our planet's resources. The Academy would directly expose students to collection, measurement, and analysis of water quality data, soil analysis, forests data including tree identification, surveying, and plotting. Students would map geologic formations using GPS systems and conventional mapping techniques and utilize plant and wildlife surveying techniques. Approximately 175 students would be involved in the study and analysis of the Glendalough State Park ecosystem each year plus an introduction to Glendalough Academy for fifth and sixth grade students taking place as well.

### II. DESCRIPTION OF PROJECT RESULTS

**Result 1:** *Glendalough Ecosystem Study, Analysis, Planning & Presentations* **Budget:** \$ 118,012

#### **Deliverable**

#### **Completion Date**

- |  |                      |
|--|----------------------|
| 1. Renovation of historic carriage house to create science classroom/lab.  | <i>October 2010</i>  |
| 2. The students will be able to identify the following parameters for testing lake water quality: turbidity, pH, phosphorous content, nitrogen content, oxygen levels, clarity, and other variables. They would be able to survey conditions that define an ecosystem. | <i>October 2010</i>  |
| 3. Students will demonstrate knowledge of soil, plant, and animal identification.  | <i>November 2010</i> |
| 4. Students will demonstrate knowledge of geological formations, erosion patterns and forces, and weather data collection and analysis.  | <i>November 2010</i> |
| 5. Students will understand prairie, wetland, lake, and forest ecology   | <i>November 2010</i> |
| 6. Students will understand the basics of soil and erosion processes.  | <i>November 2010</i> |
| 7. Students will demonstrate the knowledge of how to use the sonde,  | <i>November 2010</i> |

- turbidimeter, and the sechi disk.
8. The students will be able to accurately test lake water quality by measuring turbidity, pH, phosphorous content, nitrogen content, oxygen levels, clarity, and other variables *November 2010*
  9. The students will be able to accurately compare the lake water quality of our six park lakes with the recommended lake water testing standards from the EPA and the DNR. *May 2011*
  10. The students will become familiar with the conditions of our local lakes and their lake water quality. *May 2011*
  11. Students will develop a plan with the park staff and DNR to explore options to restore Sunset Lake from its present autotrophic state. *May 2011*
  12. Students will learn how to collect, compile & analyze scientific data. *February 2011*
  13. Students will create presentations of their findings *April/May 2011*
  14. Students will present the data to local and state organizations. *April/May 2011*
  15. Our ultimate objective is to instill in our students the importance of preserving our planet's resources through environmental stewardship. *Ongoing & lifelong*

### III. PROJECT STRATEGY

#### A. Project Team/Partners

The Glendalough Academy concept is being developed by a cadre of outstanding Battle Lake educators. We would like to recognize the expertise each brings to the project. David Marso, Educator of Physical Sciences. David is a Christa McCauliffe Excellence in Teacher Education Award recipient. Dave Himmelspach, Educator of Life Sciences, previously organized class research under a program called River Watch and coordinates a weekend excursion to the Wolf Center in Ely each year with his Advanced Biology students. Blaine Larson, Educator of Vocational Agriculture, has received the Minnesota Career & Technical Education Teacher of the Year Award. Jeff Wiersma, Glendalough State Park Manager, has worked closely with the project's planning team and is committed to making facilities, equipment, material and information available to the participating students and their teachers. Jeff Drake, Battle Lake School coordinator for this project was recently recognized as the Minnesota Middle Level Principal of the Year.

#### B. Timeline Requirements

**July 2010** – Renovation begins to convert historic carriage house into science classroom/lab space at Glendalough State Park.

**Fall 2010** – School staff will work with park staff to finalize project plans & curriculum. Instruction on the use of equipment begins. School field trips to park to introduce students to the park and lakes, park staff visits with classes to build background info, school field trip to the park to gather extensive base data, and students visit park and gather data on the six lakes and streams. Renovation to carriage house is completed.

**Winter 2010/11** – Students will continue sampling and data collection at the park.

**Spring 2011** – Students continue to gather and compile data, note trends, and make observations on the six lakes and park streams. Students prepare presentations of their findings. Wildlife survey work remains ongoing. Students continue study of prairie ecology and conservation. Students present findings to local and state organizations.

#### C. Long-Term Strategy

This project is part of a much more comprehensive vision. The Friends of Glendalough raised \$100,000 to update the Trail Center Facilities. The Glendalough Academy offers not only a local opportunity to provide students with a remarkable environmental education experience, but has the potential to draw state-wide recognition and attract students internationally. While renovating the carriage house makes sense educationally as it would function as a fantastic science lab; it also provides a rationale to preserve this historic building and ensure its continued maintenance. Preserving the building brings the park another step closer to placement on the National Historic Registry. There are also plans to connect the City of Battle Lake to the park through a bike trail. As a whole, the vision for Glendalough spurs economic development, provides a model for exemplary environmental education, provides valuable data on the health of the park to park and D.N.R. officials, and preserves the park's rich history. The plan has received enthusiastic endorsements from several key community leaders. It represents one of those rare opportunities where mission, vision, and plan complement the goals of several organizations and everyone stands to benefit.

## Project Budget: Glendalough Academy

### IV. TOTAL PROJECT REQUEST BUDGET : 18 months

BUDGET ITEM	AMOUNT
<b>Personnel:</b> <i>In this column, list who is getting paid to do what and what is the % of full-time employment for each position. List out by position or position type - one line per position/position type. For each, provide details in this column on the inputs: i.e. % dollars toward salary, % dollars toward benefits, time period for position/position type, and number of people in the position/position type.</i>	
Curriculum Training for teachers involved in the Glendalough Academy	\$2,500
<b>Contracts:</b> <i>In this column, list out proposed contracts. Be clear about whom the contract is to be made with and what services will be provided. If a specific contractor is not yet determined, specify the type of contractor sought. List out by contract types/categories - one line per type/category.</i>	
Contractor TBD: Carriage House renovation project planning/permit.	\$6,450
Contractor TBD: Carriage House moving and reset.	\$9,250
Contractor TBD: Landscaping for Carriage House	\$2,250
Contractor TBD: Demo foundation, 4' deep footing/foundation, pour concrete slab.	\$14,405
Carpentry Contractor TBD: Corrective work to base of building, windows, structural, stairs and loft. Replace carriage doors, replace entry door.	\$20,205
Mechanical Contractor TBD: Add domestic water supply, septic holding tank, sink in casework, water heater, in-floor heat.	\$27,025
Electrical Contractor TBD: New service, exterior lighting, install lighting at work stations and counter, install convenience outlets at work stations, data drop - DSL, install power for furnace.	\$15,550
<b>Equipment/Tools/Supplies:</b> <i>In this column, list out general descriptions of item(s) or item type(s) and their purpose - one line per item/item type.</i>	
Xplorer GLX (6), Spirometer Sensors (6), Chemistry Sensors (6), Dissolved Oxygen Sensors (6)	\$4,776
Oxygen Sensors (6), Carbon Dioxide Sensors (6), Weather/Anemometer Sensor (6)	\$3,582
Thermocline Sensor (6), Flow Rate/Temperature Sensor (6), Turbidity Sensor (6)	\$3,042
GPS Position Sensor (6), Temperature/Sound Level/Light (6),	\$1,428
DataStudio Software Site License - (1)	\$349
Digital Microscope - (1)	\$350
Durabook or similar field notebook computers (3) for data input, analysis & presentations.	\$5,100
<b>Travel:</b> <i>Be specific. Separate in-state and out-of-state travel; explain each. Only travel essential to completing project activities can be included.</i>	
Transport students to and from Battle Lake Public School to Glendalough State Park via school bus.	\$1,750
<b>TOTAL PROJECT BUDGET REQUEST TO LCCMR</b>	<b>\$ 118,012</b>

### V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
<b>In-kind Services During Project Period:</b> <i>Indicate any in-kind services to be provided during the funding period. List type of service(s) and estimated value. In-kind services listed must be specific to the project.</i>	\$ -	
I.S.D. #542 will furnish the classroom with science lab tables & a wireless hub.	\$5,000	Secured
I.S.D. #542 students will provide labor in landscaping this project.		Secured
<b>Funding History:</b> <i>Indicate funding secured prior to July 1, 2010 for activities directly relevant to this specific funding request. State specific source(s) of funds.</i>	\$ -	
Friends of Glendalough raised \$100,000 towards the renovation of the park Trail Center to include bathrooms and other amenities currently used by our Glendalough Academy program.	\$100,000	Secured

# GLENDALOUGH STATE PARK

## FACILITIES AND FEATURES

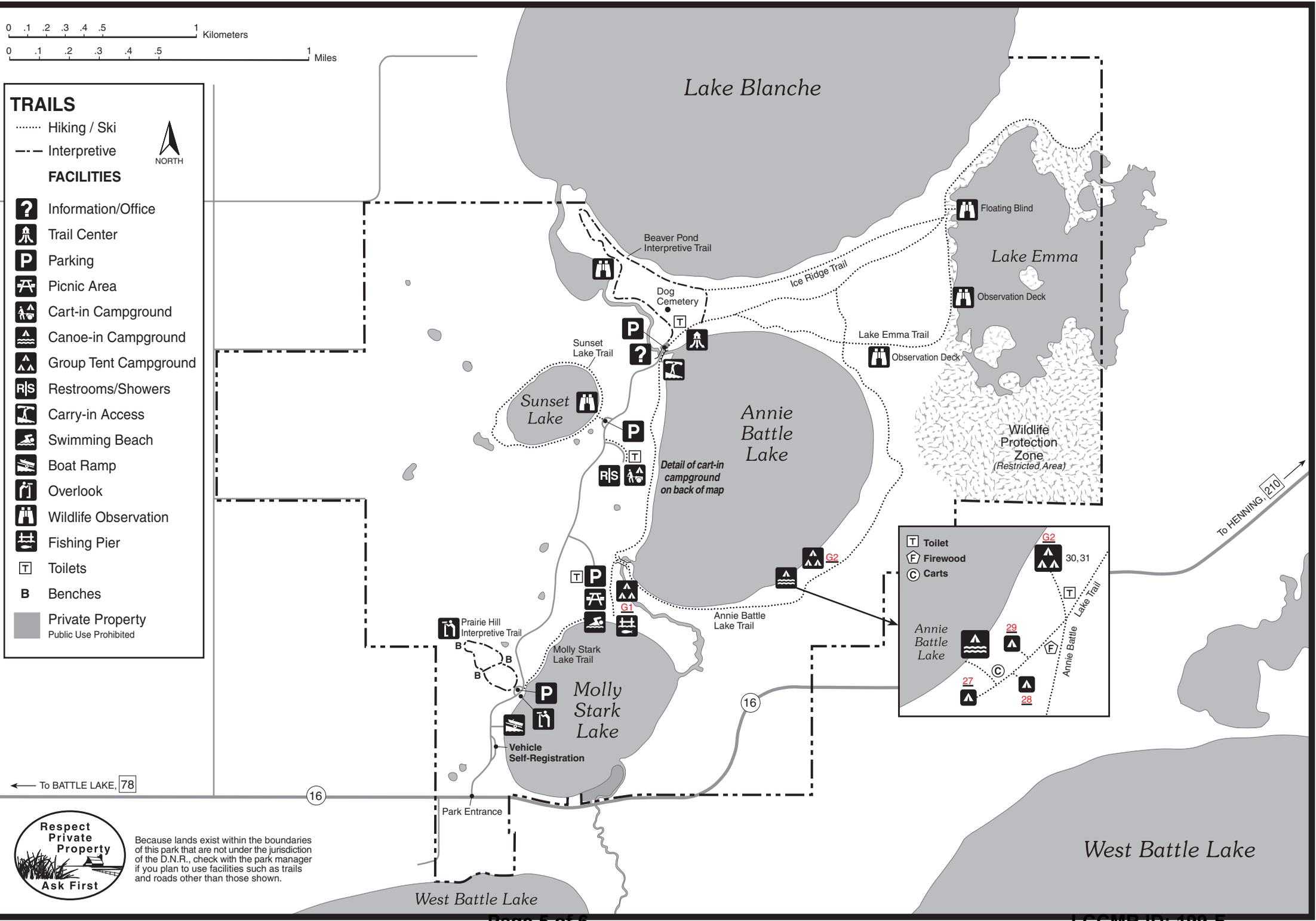
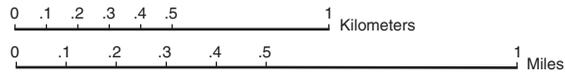
- Cart-in campground, providing 22 tent sites and 4 camper cabins (2 seasonal, 2 year-round), along with modern restroom and shower facilities, in a wooded setting near Annie Battle Lake.
- 5 canoe-in/hike-in/bike-in campsites and a canoe-in group camp on Annie Battle Lake.
- Traditional group camp on Battle Creek with a view of two lakes.
- Hiking and groomed ski trails through rich hardwood forests; across native prairie; to wildlife viewing wetlands; and around park lakes.
- Wildlife observation throughout Glendalough. Binoculars and field guides are available to observe large populations of resident deer, waterfowl, and songbirds.
- "Heritage Fishing" from shore or boat. Annie Battle Lake offers a primitive fishing experience in a quiet, non-motorized setting.
- Canoeing and kayaking on Annie Battle Lake and connecting waterways. Rentals are available at the park.
- Fishing pier and boat launch on Molly Stark Lake, providing access for modern fishing and water recreation.
- Picnicking and swimming on two lakes. Both lakes have natural sand beaches and crystal clear water. Shelter rentals available.
- Park hours: 8 a.m. to 10 p.m.

### TRAILS

- ..... Hiking / Ski
- Interpretive

### FACILITIES

- Information/Office
- Trail Center
- Parking
- Picnic Area
- Cart-in Campground
- Canoe-in Campground
- Group Tent Campground
- Restrooms/Shower
- Carry-in Access
- Swimming Beach
- Boat Ramp
- Overlook
- Wildlife Observation
- Fishing Pier
- Toilets
- Benches
- Private Property  
Public Use Prohibited



← To BATTLE LAKE, 78

To HENNING, 210



Because lands exist within the boundaries of this park that are not under the jurisdiction of the D.N.R., check with the park manager if you plan to use facilities such as trails and roads other than those shown.

## Summary of Qualifications for Jeff Drake

Jeff Drake has been the principal at Battle Lake High School since 2003. He was named Minnesota Middle Level Principal of the Year in 2009. He is a member of the district's Facility Committee which recently authorized renovations to the science classrooms and music room at the high school with an estimated project budget of \$130,000. Prior to that, he served on the Core Planning Committee for the design of a 42 million dollar high school in Hastings, Minnesota. In addition to his principal duties, Jeff also holds the title of K-12 Curriculum Director for the Battle Lake School District. A key member of the district's Strategic Planning Committee, Jeff chaired the Curriculum and Whole Product Team which examined ways to integrate the Glendalough Academy concept into the overall educational philosophy of the school.

Battle Lake Public School is a pre-K through 12<sup>th</sup> grade school serving approximately 525 students in the heart of Otter Tail County. The district is widely respected for the quality of education it provides to its students. The district was the only K-12 school system in Minnesota to be recognized by the Minnesota Academic Excellence Foundation with the prestigious "Spotlight on Education Award" in January of 2009. The school was also recently recognized by MASSP as a regional recipient of the "Star of Innovation Award" with its Glendalough Academy pilot project. **Battle Lake Public School's Mission:** Striving toward educational excellence in a safe, respectful, accepting environment: preparing all students to meet the challenges of a changing world.