



# The Lake County Grant Application Montana Land Information Act Fiscal Year 2016

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*The Lake County Digital Public Land Survey System Enhancement Project*

The purpose of this grant application is to fund the survey work necessary to enhance the Digital Public Land Survey System within Lake County, Montana.

**Primary Applicant: Lake County, Montana**

Name of principle individual: Warren C. Fahner Jr.  
Name of agency\entity: Lake County GIS  
Street: 106 4<sup>th</sup> Ave E  
City: Polson  
County: Lake  
State: MT  
Zip Code: 59860  
Contact email address: wfahner@lakemt.gov  
Contact fax address: (406) 883-7283  
Contact phone: (406) 883-7212  
Department: GIS

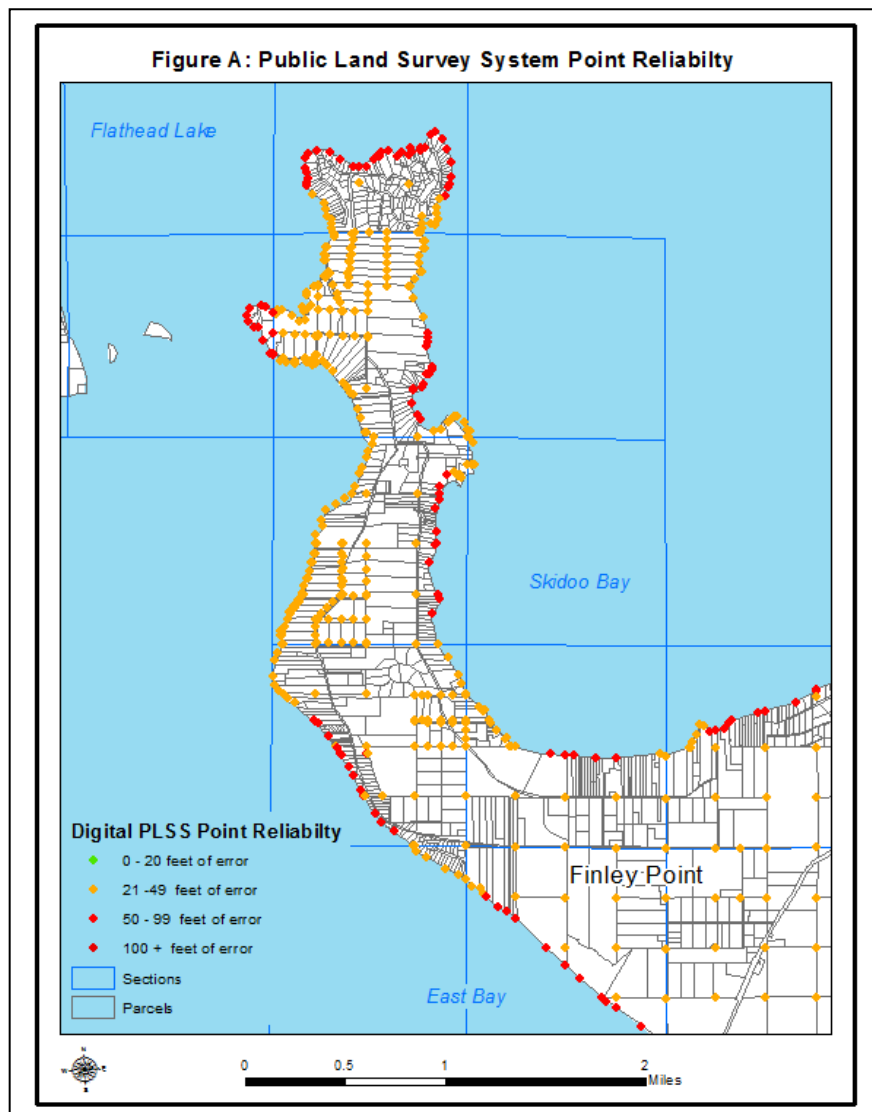
**Date Submitted: February 17, 2015**

**Descriptive Title of Applicant's Project (Required):**

**The Lake County Digital Public Land Survey System Enhancement Project**

**Relevance and Public Benefit:** Montana’s cadastral framework layer was originally based on the Bureau of Land Management’s (BLM) Geographic Coordinate Database (GCDB). This database is known to be spatially inaccurate in most areas of Lake County. The following Figure A: illustrates the degree of error within part of the proposed project area:

These inaccuracies are especially problematic when more spatially accurate data is overlaid on the cadastral framework. Of particular concern is the vertical alignment offsets often confuse public users and may produce inaccurate results when analyzing data which rely on accurate alignment. The solution to this problem is to acquire better survey control using Global Navigation Satellite System (GNSS) technology and to contribute this enhanced control to the Geodetic Control Framework. This will ultimately increase the accuracy of the cadastral and other Montana Spatial Data Infrastructure (MSDI) framework layers. The Lake County Digital Public Land Survey System Enhancement Project proposes to update



the digital position of sixty PLSS points. The project qualifies for Montana Land Information Act grant funding under the B1.1 – MSDI Data Partner Support.

**B1 – MSDI Data Partner Support - Data partners should receive funding support and outreach that enables and enhances partnership opportunities**

B1.1 - MSDI data partners contributing to statewide framework data may apply for grants according to the published MLIA grant application process.

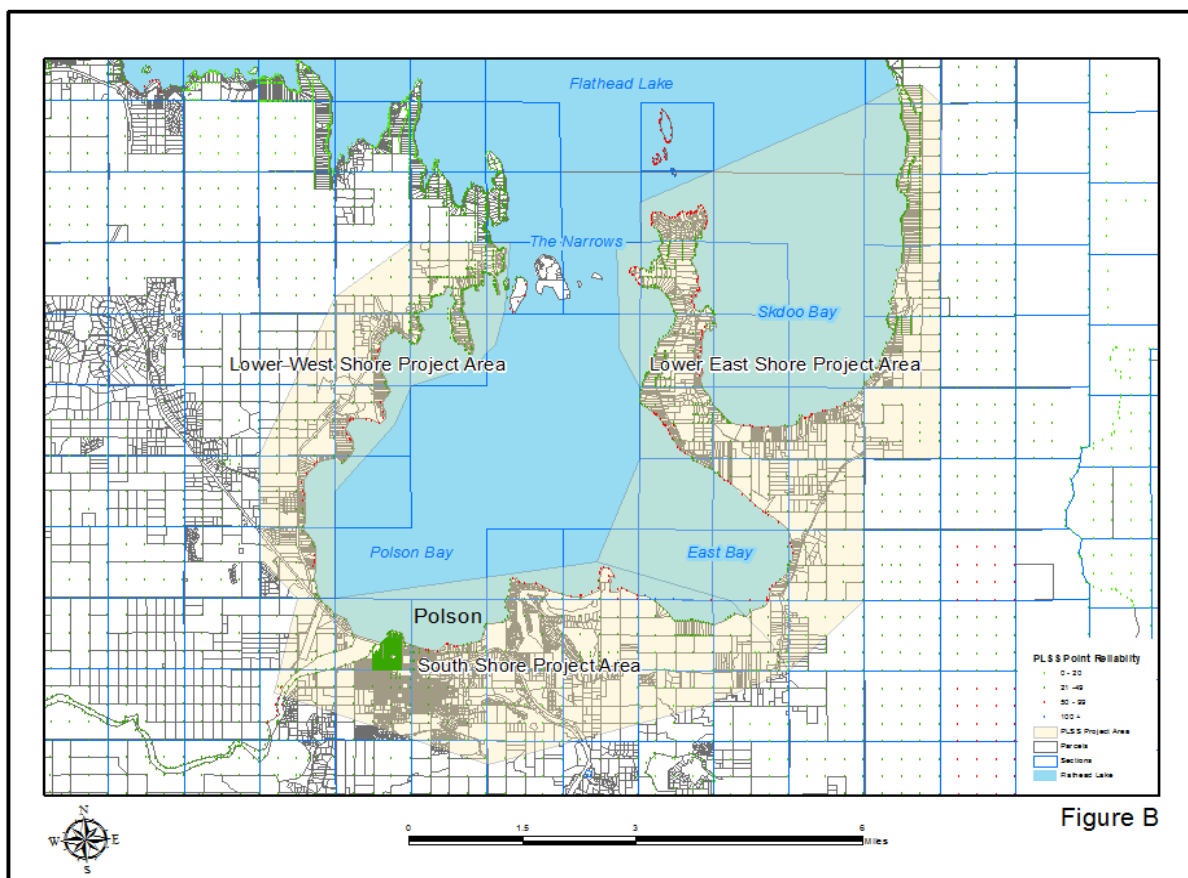
*Note: Those data partners must work in advance with the MSDI Theme Stewards to provide data in common formats that promote data integration.*

## Scope of Work

**Goal of the Project:** To improve the Digital Public Land Survey System within Lake County.

**Objective 1:** Finalize scope of work.

The initial plan is to survey 60 monuments which correspond with section and quarter section corners. The Project is divided into three separate areas due to differing estimated costs of surveying in each area. These differences in project areas are predominantly related to the topography and anticipated extra time needed to reach some of the more remote monuments. It is estimated that the Lower East Shore Project Area will need 20 monuments surveyed, the South Shore Project Area will need 15 monuments surveyed, and the Lower West Shore Project Area will need 25 monuments surveyed. (See Figure B:)



**Task 1.1:** Lake County will prioritize PLSS corners for collection and develop a final scope of work.

**Deliverables:**

- Scope of work document
- Maps that prioritize data collection

**Objective 2:** Contract with licensed Land Surveyor to survey PLSS section and quarter section corners.

Task 2.1: Lake County will create and advertise a Request for Proposals.

Task 2.2: Lake County will review bids and select licensed surveyor.

Deliverable: Signed contract with licensed surveyor's firm.

**Objective 3:** Research and prepare for field work.

Task 3.1: Lake County and contracted Surveyor will select and prioritize the monuments based on PLSS reliability, monument accessibility, and project area.

Task 3.2: Lake County will produce field-ready maps for each collection area that identify each designated PLSS monument, PLSS points in the vicinity, water features, property ownership, type of ownership (private, government, tribal), road centerlines, local topography based on existing LIDAR data, and other relevant data.

Task 3.3: Surveyor will develop a data collection plan based on their professional estimation of the relative difficulty of survey work and project area. The surveyor will utilize either Real Time Kinematic (RTK) or post-processed GNSS data as deemed appropriate.

Task 3.4: Based on the prioritized list of monuments and project area, Lake County will take responsibility for gaining authorization from private property owners prior to survey work being done. If authorization cannot be reasonably obtained, Lake County will adjust the collection plan to best compensate for the needed change.

**Deliverables:**

- Document describing collection plan.
- Field maps of each collection area.
- Authorizations for survey work.

**Objective 4:** Survey an estimated 60 PLSS monuments.

Task 4.1: Collect survey data. Surveyor will survey designated monuments following in the most general terms as described in the collection plan. Coordinates collected by the Surveyor will reduce the PLSS reliability error as much as possible with the available tools.

**Deliverables:**

- Certification by Licensed Surveyor of collected points.

**Objective 5:** Submit collected data.

Task 5.1: Lake County and Surveyor will collaborate to submit collected points data with accompanying metadata in a format acceptable to the MSDI theme leads.

Deliverables:

- Point Data and Metadata is submitted to the MSDI theme lead in an acceptable format.

**Project Schedule**

This project has a planned duration of 12 months starting in July 2015 and ending in July 2016. The following timeline shows the duration (by month) of the nine planned tasks.

Task	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
Task 1.1 Finalize scope of work	█												
Task 2.1 Advertise invitation to bid		█											
Task 2.2 Review bids / select Surveyor			█										
Task 3.1 Selection on monuments				█									
Task 3.2 Produce Maps				█	█	█							
Task 3.3 Develop Collection Plan			█	█									
Task 3.4 Property Owners Permission				█	█	█	█						
Task 4.1 Collect Survey Data					█	█	█	█	█	█	█	█	█
Task 5.1 Submit Collected Data												█	█

**Project Management and Organizational Capability Narrative**

The project management for the Lake County Digital Public Land Survey System Enhancement Project will be supervised by the Lake County Department of GIS and the Lake County Clerk and Recorder. The two principles on this project will be Warren Fahner and Michael Rave. Scott Beggs, Lake County Finance Director will the Lake County Clerk & Recorder’s Office will supervise invoices and payments.

Michael Rave is a graduate from the University of Montana with a BA in Geography, emphasis on GIS. Before going to school in Missoula, Michael was a unit coordinator at Hutchinson Technology Inc. where he managed employee scheduling and oversaw production. He has 6.5 years of GIS experience with 5.5 being in Lake County. He has extremely strong organizational skills principally in the areas of time management and work flow production.

Warren Fahner is the Lake County GIS Coordinator and is a graduate of Northwood University with a Bachelors of Business Administration which was comprised of double major in Economics and Management. He has earned a Post Baccalaureate Certificate in Geographic Information Systems from The Pennsylvania State University College of Earth and Mineral Sciences and is currently a Master’s

Degree Candidate. He has sixteen years of work experience in Information Technology and six years working in GIS.

Lake County has successfully completed six MLIA Grants.

**Budget Justification Narrative and Tables**

The costs for this project include Personnel Costs, Travel Funds, Office Supplies & Postage, and Professional Fees in support of this grant application.

**Lake County will provide in the form of matching funds:**

***Applicant budget summary***

Category	MLIA Share	Applicant Share	Total
a. Personnel Costs	0.00	3000.00	3000.00
b. Travel Costs	0.00	200.00	200.00
d. Office Supplies & Postage	0.00	300.00	300.00
e. Professional Fees	20,000.00	6000.00	26,000.00
Totals	20,000.00	9500.00	29,500.00

**Authorizing Statement**

**I hereby certify that the information and all statements in this application are true, complete and accurate to the best of my knowledge and that the project or activity complies with all applicable state, local and federal laws and regulations.**

**I further certify that this project will comply with applicable statutory and regulatory standards.**

**I further certify that I am (by my signature) authorized to enter into a binding agreement with the Montana State Library to obtain a grant if this application receives approval.**

**Warren C. Fahner** \_\_\_\_\_  
Name (print or type)

**Title: \_\_Lake County GIS Coordinator\_\_**

\_\_\_\_\_  
**Signature and Title of Authorized Representative(s) of Public Entity Applicant**

## Appendix A: Letter of Support



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PO Box 201800 1515 East 6<sup>th</sup> Avenue Helena, MT 59620 (406) 444-3115

December 2, 2019

Warren (Chuck) Fahner

Lake County GIS

106 4<sup>th</sup> Ave. East

Polson, MT 59860

Dear Chuck:

As Montana Spatial Data Infrastructure stewards of the Cadastral, Geodetic Control and Administrative Boundary themes, we highly encourage data contributors to improve the accuracy of the digital Public Land Survey System. Using a local/state partnership approach we can get new survey control entered in to the State's parcel fabric and the Montana Control Point Database. After entry into the parcel fabric, the State Library can assist Lake County in an adjustment of the Cadastral database and corresponding administrative boundaries for better vertical alignment with aerial photography and other features like road centerlines and structures collected using GPS. As State GIS Coordinator representing the MSDI theme leads for Cadastral, Geodetic Control and Administrative Boundaries, I strongly support Lake County's PLSS enhancement efforts and your FY 2016 request for MLIA funding.

Sincerely,

A handwritten signature in black ink, appearing to read "Stewart Kirkpatrick". The signature is fluid and cursive, written over a light blue horizontal line.

Stewart Kirkpatrick

State GIS Coordinator

Montana State Library