

# Mineral County, MT - Cemetery Mapping



## Montana Land Information Act Fiscal Year 2014 - 2015 February 14, 2014



APPLICATION FOR GRANT FUNDING

**STEP 1 – Applicant and Partner Information**

**Primary Applicant (Required):**

Name of principle individual: Roman Zylawy, Mineral County Commission Chair

Name of agency/entity: Mineral County

Street: 300 River St

City: Superior

County: Mineral

State: Montana

Zip Code: 59872

Contact email address:

Contact fax address: (406) 424-8301

Contact phone: (406) 424-8403

**Organizational Unit (if applicable)**

Department:

Division:

**Other Project Partners – complete for each partner (copy box as needed):**

Name of contact: Tim Read, R.S.

Name of Agency: Mineral County

Street: PO Box 396

City: Superior

County: Mineral

State: Montana

Zip Code: 59872

Contact email address: tread@co.mineral.mt.us

Contact phone: 406-822-3525

**Date Submitted (Required): February 15, 2014 Date Received by State:**

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

**Mineral County, MT - Cemetery Mapping**

## **STEP 2 – Relevance and Public Benefit**

The proposed project by Mineral County will create a GIS database of the five main cemeteries located in Mineral County. If awarded the necessary funds Mineral County will sign a letter of agreement with MaPS, Inc. to facilitate the project.

Because MaPS, Inc. has successfully conducted gravesite mapping for Toole and Liberty Counties under a previous MLIA grant, to facilitate standardized information, the project will use the cemetery mapping data scheme already developed by MaPS, Inc. and approved by the State as our guide (Samples attached).

Mineral County would eventually like to deploy an interactive mapping webpage to allow users to reference County GIS data, including the gravesite information developed herein (e.g. users could query a deceased relative's name to automatically zoom to their gravesite in the map, view the grave's marker photo, reference an obituary, etc.). Mineral County would eventually like to have a public access terminal in the Courthouse that would contain all its GIS data, including the cemetery/gravesite information, to facilitate genealogy and other research.

The Cemetery Mapping of Mineral County adheres to B2.2 of the MLIA Grant Categories by making County and Public GIS data more accessible, user friendly and understandable to County Agencies, the public, and other organizations. This system will be maintained to update recent additions to the cemeteries. The cemetery districts will greatly benefit from the new diagrams and indexes that they will be supplied at the completion of this project. This data will be digital, making it more easily accessible to the public.

This project builds upon the previous GPS/GIS mapping efforts that Mineral County has undertaken or supported, including: the mapping of the County's roads and structures for the Enhanced 9-1-1 project, including ongoing maintenance of new construction; use of Title III funds to canvass the County's USFS road network and map/address remote structures; use of Title III funds to create a digital atlas of the entire County, including printing, distribution and sales of atlas booklets; use of road, structure and cadastral GIS data to support the evacuation preparedness and fire management of the recent West Mullan Fire; working with the Town of Superior on compiling and hotlinking of EPA superfund documentation to individual structures/properties (e.g. notice of contamination, remediation efforts, final testing results, etc.); and most recently, working with the Town of Superior to locate all of their fire hydrants and conduct GPS mapping to create a point database (to eventually augment with the rest of the water utility and sewer systems). Mineral County recognizes the value of GPS/GIS data and has embraced its development and use as a valuable tool for emergency response, disaster mitigation, planning and resource management.

## STEP 3 – Scope of Work Narrative

### Goals and Objectives:

1. **Create a cemetery polygon layer for Mineral County.** This project is designed with 3 phases for ultimate completion of the project with ongoing maintenance planned. Phase 1 will include the initial research for the project. MaPS, Inc. will work with County and local officials to acquire a list of the five cemeteries in Mineral County as well as any existing maps/diagrams. MaPS, Inc. will then work with County and local officials to determine an approximate location of each cemetery within the current GIS data. MaPS, Inc. will create a simple polygon feature class for the Mineral County cemeteries, digitizing each cemetery's extent/area using high resolution aerial imagery, existing cadastral data and/or the existing maps/diagrams. Each cemetery polygon will be attributed with the cemetery name, physical address, useful contact information (e.g.) Names, phone numbers, addresses, etc. for the Cemetery Board, maintenance, etc. and County name. Any existing maps/diagrams will also be scanned and hot-linked to each polygon so they can be accessed for future reference.
  - a. Acquire existing maps/diagrams. To be completed by July 2014
  - b. Determine approximate location of each cemetery within the current GIS data. To be completed by August 2014.
  - c. Create simple polygon digitizing cemeteries and attributing the name, physical address, and useful contact information. To be completed by August 2014.
  - d. Scan existing maps/diagrams to be linked to maps. To be completed by August 2014.
2. **Collect data for GPS/GIS mapping and create maps.** Phase 2 is the GPS/GIS Mapping phase. MaPS, Inc. will travel to Mineral County and visit each of the five (5) cemeteries to conduct GPS verification and mapping. There are an estimated 1,750 gravesites in the proposed project area. Centerlines of each cemetery's interior access roads will be mapped and attributed. Each individual grave/marker therein will also be mapped as a coordinate location (X,Y) or point. MaPS, Inc. will utilize a sub-meter DGPS receiver to record an averaged GPS point (e.g. coordinate locations are recorded every second while data is being typed in and the resulting points are averaged to provide a highly accurate final point) of each grave. Each grave point will be attributed with:
  - Type:** Picklist containing choices for the type of grave or structure – e.g. below ground, above ground vault, mausoleum, family vault, cremation repository, etc.
  - Name(s):** of the deceased (Last Name, First Name, Middle Name, Suffix – e.g. "JOHNSON, EARL V III")

**Dates:** (“DOB-DOD” expressed as YYYY MM DD – e.g. “1910 10 12 – 1977 12 17”)

**Location:** Information (Cemetery Name, Section/Block, Plot/Lot or Grave Number, etc.)

**Status:** (Picklist containing choices for the status of the gravesite and/or record) NTV – for “need-to-verify” – flag to indicate the point needs additional attribution/attention because an attribute above was not readily apparent/observable; OK – gravesite was properly mapped and attributed; REPAIR – flag to indicate a grave marker is damaged, sunken, leaning or vandalized and needs attention/remediation.

**Remarks:** (e.g. notes regarding the status or unusual or interesting details) MaPS, Inc. will utilize the field data above to create a point feature class of gravesites for Mineral County. Cremation remains repositories or vaults with multiple remains may be mapped as one point in the field (e.g. estimated offset distance and direction to the approximate center of the structure) and drawers or vaults within will be added and attributed later (as stacked points to allow indexing and queries for research). MaPS, Inc. will also take a digital photograph of each grave marker (color, front view and framed or zoomed in/out to show sufficient detail in 640x480 .jpg image size/resolution) to be hot-linked/hyper-linked to each GPS point via a unique identification number.

- a. Visit 5 cemeteries and map each gravesite attributing each with type, name, dates, location, status and remarks. To be completed during September and October 2014.
  - b. Take digital photo of each grave marker. To be completed during September and October 2014.
- 3. Disseminate information and products.** Final digital color layouts for each cemetery will be created (at a scale appropriate to sufficiently portray detailed information, but still print/plot on standardized paper and/or plotter sizes) including annotation (e.g. each section or block and/or grave number). Each layout will also contain a simple locator map (e.g. where the cemetery is within the County, City or Town), title, legend, scale and gravesite indexes (e.g. alphabetical list of names with location information). Each layout will be utilized to export final color .pdf map diagrams of each cemetery to be submitted electronically to Mineral County.

The status field of the gravesite points will be used to create a report (color-coded points in a .pdf map diagram with a MS Excel spreadsheet detailing all NTV and REPAIR points with REMARKS). Said reports will be distributed to Mineral County and the respective cemetery contact to assist research. MaPS, Inc. expects one report exchange with local cemetery officials to update/modify the data attribution and/or statuses of flagged gravesites to attempt to update each point with a status of “OK.” Ongoing updates to this information fall under ongoing maintenance.

Mineral County has a website to which links will be established referencing the final .pdf map diagrams for each cemetery, as well as gravesite indexes. Mineral County understands that the resulting GIS data will need to be submitted by MaPS, Inc. to the State of MT as part of the MLIA program, including valid metadata.

- a. Prepare digital color layouts for each cemetery. To be completed between November 2014 and March 2015 (e.g. during the winter).
  - b. Create report using status field and distribute to Mineral County and cemetery contact. To be completed during March and April 2014.
  - c. Link finalized maps to County website (County's responsibility). To be completed by April 2015.
4. The final phase of the project is the ongoing maintenance of the project. Mineral County intends to maintain the wealth of information collected above, by retaining MaPS, Inc. (they are already under contract to maintain the E-911 data) to annually conduct GPS maintenance mapping sweeps of each cemetery by coordinating with each cemetery's contact to identify and record new gravesites and take additional digital images. MaPS, Inc. will update the GIS data stored at Mineral County with any new graves. MaPS, Inc. will update each cemetery's map layout, export new .pdfs and redistribute and/or re-link any affected .pdf map diagrams and gravesite indexes. It is unknown at this time how many new graves could be expected annually.
- a. Annually update cemetery information to include new gravesites. This will be completed annually after the completion of the project as maintenance.

**Tasks and Activities:**

1. **Finalize project details and sign a Letter of Agreement with MaPS, Inc.**  
MaPS, Inc. will be providing all of the equipment, software, and services for this mapping project and will be overseen by the grant administrator for the Mineral County Commissioners. After the agreement is signed, MaPS, Inc. will complete the project with the assistance from Mineral County as outlined above. To be completed by July 2014.

**Project Schedule:**

The project is contingent upon the award of Montana Land Information Act funding. The schedule for this project could be implemented as follows:

<b>Scheduled Completion Date</b>	<b>Activity</b>
June 2014	Projected date for receiving grant funds.
July 2014	Sign Letter of Agreement with MaPS, Inc.
July 2014	Collect existing maps/diagrams for the cemeteries.
August 2014	Create the cemetery polygons and attribute. Scan existing maps/diagrams into digital format and hotlink to the cemetery polygons.
August – October 2014	Visit all cemeteries, mapping each grave and entering attributes. Take digital photo of all grave markers and hotlink to grave points.
November 2014 – March 2015	Prepare digital color layouts for each cemetery, including indexing. Create report using status field and distribute to Mineral County and cemetery contacts for review and updating. Link finalized maps to County website.
June 2015	Estimated Completion of project.
Annually	Update cemetery information to include new gravesites.

## **STEP 4 – Project Management and Organizational Capability Narrative**

It is proposed that this project be contracted to MaPS, Inc. and managed by Mineral County. The grant administrator will be Tim Read, the Mineral County Environmental Health and Planning Director. Tim Read has administered CDBG grants, EPA assistance grants, and participated in preparation of the St. Regis Senior Citizens Center building construction grant. Sharon Patterson, a certified grant administrator will be a backup to Tim Read.

Upon funding of this project Mineral County will contract with MaPS, Inc. to complete the project. Mapping and Planning Specialists, Inc. (MaPS, Inc.) was organized as a sole proprietorship in 2000 to assist several counties in Montana to complete their unfinished mapping and E-911 implementations. MaPS, Inc. was incorporated in 2002 and has become a premiere provider of professional E-911 and GPS/GIS consulting and implementation services in the region. MaPS, Inc.'s personnel have over 30 years of combined experience in GPS field data collection, GIS development and E-911 implementation and have worked on over forty projects in many states across the nation. MaPS, Inc. has been working with Mineral County since 2004, successfully completing their E-911 system and subsequently maintaining it.

Key Personnel for MaPS, Inc. include Matthew Pearce the president and founder of the company. Matt is a graduate of the University of Minnesota with a B.S. in Geography with GIS/Cartography emphasis. He has been working in the field for 20 years and is a certified Emergency Numbering Professional (ENP) and a member of the National Emergency Numbering Association. MaPS, Inc. is currently providing E-911 and GPS/GIS mapping and addressing services for a significant number of MT counties, including Toole, Pondera, Chouteau, Valley, Granite, Anaconda-Deer Lodge, Mineral and Sanders. To service their MT clients, MaPS, Inc. has a local field office in Helena, MT.



## STEP 5 – Budget Justification Narrative and Tables

The projected MLIA cost of the project for completion of phases 1, 2 and 3 comes to a total of \$14,875. Phase 1 is estimated to cost \$680 and will include labor for information gathering/research, scanning, digitizing, and attribution. Most existing cemetery maps/diagrams and information can be gathered via mail and/or e-mail with assistance from County and local authorities. However, brief on-site meeting(s) will be conducted by MaPS, Inc. with local cemetery officials prior to mapping to allow all parties to meet/greet each other and answer questions regarding the proposed work and to work out details regarding scheduling (e.g. so MaPS, Inc. is not attempting to map during scheduled funerals or during watering/mowing/maintenance days), secure storage of mapping equipment, gate access (e.g. keys or combos), expected etiquette, etc. MaPS, Inc. will create cemetery polygons using cadastral data, aerial imagery and/or the supplied documentation. The cemetery polygons will be attributed with cemetery name, physical address, contact information, etc. The scanned documentation will also be hotlinked as digital .pdfs.

Phase 2 will cost \$10,795. This value includes all labor and expenses (e.g. travel time, mileage, lodging, per diem, etc.). It is estimated that this portion of the project will require 10-12 days to be completed over an 8-10 week period. As MaPS, Inc. has other obligations, they may only be able to spend 1 week per month to complete the on-site GPS mapping.

Phase 3 costs are currently estimated at \$3,400 and include labor for processing of the raw GPS field data (loading of individual daily shapefiles to a geodatabase and conducting initial QA/QC checks), file management of the digital grave/marker images (changing each raw image name to match the unique I.D. of each grave point) including calc'g the hotlink patch to the grave points table, map layout creation, report production and exchange of information/updates with local officials. On-site visits are again not included under the assumption that the necessary information can be shared or exchanged electronically. Cost includes one round of data exchange between MaPS, Inc. and local cemetery officials to review the GIS data and provide feedback of missing information (e.g. attributes that were flagged for review during field work or were missing from individual markers and couldn't be obtained via review of supplied cemetery records).

The final stage of this project is the maintenance. Mineral County will be responsible for the maintenance costs of its cemetery GIS data. Maintenance is a difficult number to calculate. The cost per grave site to map a new grave has been estimated at \$19. For the purpose of budgeting, assuming that there would be a growth rate of 1% to 2% annually, ongoing GPS mapping could cost an estimated \$300 to \$500 per year. Costs to update all the map layouts, .pdf regeneration, etc. will likely require 1 to 2 hours per cemetery or 3 - 5 hours; based on a GIS Specialist rate of \$75/hr., the cost could be \$225 to \$375 annually. Overall estimated maintenance costs for Mineral County could be \$875 annually.

Additional costs to the county include in-kind donation of personnel time. For Phase 1, the County will coordinate the initial information gathering from the Cemetery Boards, scan or have scanned the documentation (cemetery plat maps, records, lists, etc.) received, create the initial contact database of cemetery contacts and forward the compiled information to MaPS, Inc. It was estimated the County would incur 50 hours of work. This includes the grant administration being done by Mineral County as well as the expected calls that will be fielded throughout the project helping people access information and answering inquiries. This was calculated using the grant administrator's rate of pay at \$27.71 per hour. The fringe benefits were calculated at 30% of wage.

Mineral County will publish and link the final maps/indexes to the County website to increase access. We intend to acquire a Public Access Computer Terminal and load it with ArcReader software and data, including a tutorial. The Public Access Computer Terminal could be located in the public library or in the courthouse.

The County intends to utilize genealogy-minded volunteers to research obituary documentation and/or photographs to also link to the grave points. Significant data has been collected but is not available in a single format that can be accessed via a public portal such as the county web page. Mineral County estimates these services will be equal to \$3,000 of in-kind services. Conversations with the St. Regis Cemetery District 2 board members indicated there are in support of the mapping project.

The Mineral County Commissioners held a public meeting on February 7, 2014, to provide opportunity for public comments in regard to the grant application. The majority of attendees voiced their support for the project and were very supportive of having a standardize format for the records and data. The compiled data that will become available to the public was much desired goal.

**Applicant budget summary**

Category	MLIA Share	Applicant Share In-Kind	Other Share	Total
a. Personnel	\$0.00	\$1,385.50		\$1,385.50
a.1 Fringe Benefits	\$0.00	\$415.65		\$415.65
b. Travel	\$0.00	\$0.00		\$0.00
c. Equipment	\$0.00	\$0.00		\$0.00
d. Supplies	\$0.00	\$0.00		\$0.00
e. Contractual	\$14,723.00	\$0.00		\$14,723.00
f. Other	\$0.00	\$3,000		\$3,000
<b>Totals</b>	<b>\$14,723.00</b>	<b>\$4,801.15</b>		<b>\$19,524.15</b>

**Project Partner budget summary (provide a separate budget summary for each partner (including subcontracts). See page 6 for a definition of a project partner.**

Category	Partner 1	Partner 2	Partner 3	Total
a. Personnel	\$ *	\$0		\$00
a.1 Fringe Benefits	\$0	\$0		\$0
b. Travel				\$0.00
c. Equipment				\$0.00
d. Supplies				\$0.00
e. Contractual				\$0.00
f. Other	\$00	\$00		\$0
				\$0.00
<b>Totals</b>	<b>\$00</b>	<b>\$00</b>		<b>\$00</b>

**\* Volunteers without re-imbusement.**

## **STEP 6 – Statements of Support**

Please see attached.

## **STEP 7 – Renewable Grant Accountability Narrative**

Not Applicable

## **STEP 8 – Sign the Application**

### **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.

\_\_\_\_\_  
Name (print or type)

\_\_\_\_\_  
Title (print or type)

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

Date \_\_\_\_\_