

APPLICATION FOR GRANT FUNDING

STEP 1 – Applicant and Partner Information

Primary Applicant (Required):

Name of principle individual: **Larry J. Bonderud, Mayor**

Name of agency/entity: **City of Shelby, Montana**

Street: **112 1st Street South**

City: **Shelby**

County: **Toole**

State: **MT**

Zip Code: **59474**

Contact email address: ***larry@shelbymt.com***

Contact fax address: **(406) 434-2039**

Contact phone: **(406) 434-5222**

Organizational Unit (if applicable)

Department:

Division:

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

Name of contact: **Allan Underdal**

Name of Agency: **Toole County Commissioners**

Street: **226 1st Street South**

City: **Shelby**

County: **Toole**

State: **MT**

Zip Code: **59474**

Contact email address: ***aunderdal@toolecountymt.gov***

Contact phone: **(406) 424-8310**

Date Submitted (Required): **2-12-15**

Date Received by State:

Descriptive Title of Applicant's Project (Required):

City of Shelby Utility Infrastructure GPS/GIS Technology Project Phase II

STEP 2 – Relevance and Public Benefit

The purpose of the Montana Land Information Act is to develop a standardized sustainable method to collect, maintain and disseminate information in digital forms about the natural and artificial land characteristics of Montana.

The City of Shelby (the City) has taken the first steps in utilizing these digital forms in mapping the City's water infrastructure. The City began with a small pilot project in a 10-block area for water utility mapping in 2013. The Pilot Project data facilitated development of a scope of work and cost estimate for location and mapping of the City's entire water utility infrastructure. The City successfully applied for MLIA grant funding in 2014 to verify and map curb stops, gate valves, meter pits and fire hydrants within the community. The water department staff located and marked 2,131 infrastructure points which MaPS, Inc. then GPS mapped. MaPS, Inc. processed the field data and created a GIS feature dataset of the water infrastructure, including a preliminary pipe network. MaPS, Inc. installed two ArcGIS software licenses and the current dataset on City computers and provided GIS editing training to City staff. City staff are currently attributing the preliminary pipe network. MaPS, Inc. will review this work, with the final dataset submitted to the State within the current grant period of eligibility. **The City's proposed next step is consultation on the best GPS equipment and purchase of and training on the GPS equipment and software - to maintain and collect new infrastructure.**

As identified in the Land Plan Priorities – B2 – Local and Regional GIS Capacity Building, the City believes this investment leverages local, regional and state funding, time and talent to coordinate a strong Montana GIS system – improving the quality of life for Shelby, Toole County and Montana citizens. Utilizing GIS/GPS technology will enhance our community in relevant decision making ~ serving to compete globally for economic development on a city, regional and state-wide level while at the same time creating a high level of efficiency in addressing local infrastructure issues.

The expansion of Shelby's multi-modal facility; industrial park; border protection services; residential; and commercial enterprises directs the essential need for locating and mapping of the city's utility infrastructure. This spatial data is essential for land design; financial estimates and the bidding process for projects within city limits. The project also assists fire protection services as hydrant locations, water volumes and pipe sizes are critical for fire suppression. This data assists the City's utility staff in location of service lines and shut-off valves in times of repair and replacement and aids gas and electric utility companies in line location. Accurate data provides efficient and exact information for homeowners as well as commercial enterprises. It will also aid the North Central Montana Regional Water Authority as another phase of water line extension through Shelby and Toole County approaches.

The collection of Shelby's land information will create a consistent, maintainable and accessible format critical to the growing needs of users, both public and private. Future economic growth prospects and current development projects dictate the need to implement GIS/GPS technology in verifying and mapping the utility infrastructure.

STEP 3 – Scope of Work Narrative

Scope of Work:

Project Goals: Continue the mapping project with the purchase of GPS equipment and field data collection software to allow City staff to:

- Use water utility information in the field to find existing infrastructure;
- Collect remaining infrastructure in areas that were in development or outside the original 2,000 point boundary;
- Collect/map other City infrastructure;
- Maintain the current infrastructure dataset by mapping points as they are installed or re-mapping changed points.

Objective 1: Hire Contractor/Finalize Scope of Work

- The City of Shelby will hire our proposed contractor and finalize a scope of work.
Deliverable:
 - Signed contract
 - Final scope of work

Objective 2: Consultation

- Contractor will provide “best fit” equipment/software configuration materials, costs and benefits to the City.
Deliverables:
 - Equipment proposal/quotes

Objective 3: Equipment Purchase

- City will purchase a quality DGPS received paired with a mobile computing device and field data collection system software.
Deliverable:
 - Equipment purchase invoices

Objective 4: System Set-up and Staff Training

- Contractor will coordinate with City staff on infrastructure needs.
- Contractor will coordinate with City staff to determine GIS features and attribution; modify the existing geodatabase with the proposed datasets and document the field data system configuration needed to allow mapping of additional municipal infrastructure.
Deliverable:
 - Schedule/Guidelines

Objective 5: City Field Data Collection

- City staff will work afield collecting additional water utilities infrastructure.
- City staff will work afield collecting sewer system infrastructure.
- City staff will work afield collecting storm drain infrastructure.

Deliverable:

- GPS Field Data

Objective 6: Advanced ArcGIS On-site Training & Ongoing Technical Support

- Contractor will provide on-site training to City GIS staff to support GIS data maintenance and integration of GPS field data.

Deliverable:

- Software training/support

Objective 7: City GIS Processing & Data Integration

- City staff will load shapefiles to the City geodatabase.
- City staff will create a generalized set of pipe network lines for the newly collected/mapped water utility point data.
- City staff will create and attribute the generalized pipe network for the sewer and storm drainage systems.
- Contractor will review for accuracy and completeness.

Deliverable:

- GIS database of additional water; sewer; and storm drain systems infrastructure

Objective 8: Grant Reporting and Close-out

- The City will complete all grant reporting; reimbursement requests; and grant close-out information.

Deliverable:

- Grant close-out ~ Report ~ Final Draw Request
- Final GIS dataset will be delivered to the Montana State Library-GIS Division

Scheduled Date	Activity
July 2015	Grant Award Notification
July 2015	Contractor Agreement
July - August 2015	Consultation
August 2015	Purchase of equipment
August 2015	On-site training
August – October 2015	Field Data Collection
November 2015	Advanced ArcGIS training/Technical support
December 2015 – May 2016	GIS Processing/Data integration
June 2016	Estimated project completion and closeout

STEP 4 – Project Management and Organizational Capability Narrative

It is proposed that this project be contracted to MaPS, Inc. and managed by the City. In 2013, MaPS, Inc. originally conducted a 10-block pilot project. With information garnered from the pilot project, the City of Shelby applied for and was successful in obtaining MLIA funding to map the City's water infrastructure. MaPS, Inc. is in the final stages of completing the current Shelby MLIA Water Utility Infrastructure mapping grant (MLIA_2015_05). Data has been collected; GIS processing and review have been completed; and the City of Shelby is completing the attribution of the pipe network. MaPS, Inc. will then integrate the information into one geodatabase and create the final metadata file for submission to the State Library.

Project Manager is Mayor Larry Bonderud. Mayor Bonderud is in his seventh term as Mayor of Shelby. He has been instrumental in leveraging funding for city/county projects over the last twenty years, totaling an estimated \$200 million, of which he has been the project manager on many of these projects. He serves as the Executive Director of the Port of Northern Montana as well as a Doctor of Optometry with practices in Shelby and Conrad.

Community Development Director, Lorette Carter will assist Mayor Bonderud in the administration of the project. She has served as Community Development Director for 11 years. Carter oversees the reporting on numerous grant-funded projects within the community. She will complete the required reporting and administrative duties in the successful completion of the mapping project.

The field collection will be conducted by City staff who have previously worked with MaPS, Inc. on-site in the initial locating and pre-marking of water utilities. These employees are long-time staff who work with city utilities on a daily basis and are very familiar with the current project. City Superintendent, Loren Skartved will be included in the meetings; field collection; and integration throughout the project and will supervise the field staff.

City staff previously trained on the ArcGIS software will continue with input of datasets and advanced ArcGIS training to complete water infrastructure and input sewer and storm drainage system information. Staff include the Public Works Office Clerk and City Hall Assistant Clerk.

Upon grant award, the City 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 premier 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 Toole County since 2001, successfully completing an E-911 system. The City also

partnered with MaPS Inc. in 2013 to conduct a 10-block pilot project to begin the water utilities mapping project w 2014's Phase 1 mapping of the water utility infrastructure.

Key Personnel for MaPS, Inc. include Matthew Pearce, 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 over 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.

MaPS, Inc. also relies on Dylan Berg, Projects Coordinator of the Helena field office. Dylan is an experienced GIS Analyst and will conduct most of the GPS field data collection and GIS processing, including on-site project coordination and training. Dylan has been working in the MT and ID areas in the GPS/GIS industry for over 15 years and has a hard-earned reputation of providing clients with excellent customer service.

STEP 5 – Budget Justification Narrative and Tables

The proposed cost for services includes the following tasks:

Task 1 ~ GPS Equipment and Field Data Collection Software Consulting

MaPS, Inc. will supply consulting time to approach industry contacts with the nature of the project needs and work with City water staff to identify the “best fit” equipment and software configuration. MaPS, Inc. will then provide the proposed and recommended materials, costs, benefits, etc. at an on-site roundtable discussion to allow the City to make an informed decision, including potential equipment/software demos from manufacturers/suppliers. The estimated cost of MaPS, Inc.’s off-site research, on-site labor and expenses is \$3,375.00. City time associated with the task is estimated at \$1,200.00.

Task 2 ~ Field Data Collection System

Based on initial estimates, a quality sub-meter or better DGPS receiver paired with a mobile computing device and field data collection system software may cost \$10,000.00 or more. To acquire the needed hardware/software, the city is requesting \$5,000.00 from State MLIA funding. The City will contribute the remainder of the funding for the purchase of equipment.

Task 3 ~ Field Data Collection System Set-up and Staff Training

MaPS, Inc. will work with City staff on-site to determine additional infrastructure to be collected. MaPS, Inc. and City staff will determine the GIS features and attribution, modify the existing geodatabase with the proposed datasets and document the field data system configuration needed to allow mapping of additional municipal infrastructure. MaPS, Inc. has estimated this cost at \$1,065.00. City time associated with this task is estimated at \$420.00.

With equipment purchased, City staff will need additional consulting support (from either the GPS equipment manufacturer and/or the field data collection software manufacturer) for set-up of the system purchased. This support includes loading the existing water and E-911 data as background maps, configuring the equipment based on the data specification to map new infrastructure and develop the process/procedures to maintain the water dataset and map new points. Supplier costs are estimated at \$1,000.00.

City staff will need to be trained on-site on the developed processes and procedures to use the GPS field data collection equipment properly to maintain the current water system and conduct supplemental field data collection for other infrastructure. Supplier costs for labor and expenses related to on-site training are estimated at \$2,250.00. City costs associated with this task are estimated at \$1,850.00.

MaPS, Inc., as the City's technology consultant will support the City during the above tasks by working with either the GPS equipment manufacturer and/or the field data collection software manufacturer to accurately set-up the purchased field data collection system (telephone technical support and/or equipment review/testing) and during the on-site training by observing and offering trainer guidance on City specific needs. MaPS, Inc.'s costs for off/on-site labor and expenses) are estimated at \$2,250.00.

Task 4 ~ City Data Collection

City staff trained in Task 3 will work afield collecting:

- A) Additional water utilities infrastructure in new areas of construction;
- B) Sewer system infrastructure including manhole access covers, lift stations and lagoon buildings;
- C) Storm drain infrastructure including storm drain grates and culverts.

The above tasks will result in a complete water utility, sewer and storm drain system as an additional dataset that the City will provide to the State MLIA stewards. The City estimates approximately 350 hours from City staff to complete data collection. City costs are estimated at \$10,750.00.

Task 5 ~ Advanced ArcGIS On-site Training & Ongoing Technical Support

As part of the 2015 MLIA water utilities grant, the City purchased two (2) ArcGIS licenses which MaPS, Inc. installed – one at City Hall and one at the City Shop. The City computers were loaded with County E-911 and water utilities data. MaPS, Inc. provided preliminary ArcGIS editing training for two City staff members to attribute the initial pipe network. This initial training included ArcGIS Basics and simple ArcGIS Editing. Ongoing maintenance of the water utilities data and integration of new infrastructure into the city's geodatabase, however requires more advanced ArcGIS training.

Once City field staff have conducted field data collection of additional water and other infrastructure in Task 4, MaPS, Inc. will provide on-site GIS data maintenance training sessions. MaPS, Inc. anticipates the ArcGIS software training will be conducted in one work day (8 hours). Training will be conducted in each location, using City computers with a maximum of 1-2 City personnel per session. Focus of the advanced ArcGIS training for City staff will be on maintaining the geodatabase's current feature datasets and editing/integration of GPS field data, including QA/QC review and attribution, as well as data standardization. The advanced GIS training will also cover creation and manipulation of points, lines and areas, to allow city staff to ultimately create and maintain city limits boundaries, zoning districts or other polygon data. MaPS, Inc.'s costs (on-site labor and expenses) for Task 5's Advanced GIS training for City staff are estimated at \$1,235.00. Training costs for City staff are estimated at \$900.00.

During the course of the project, the City anticipates requiring MaPS, Inc.'s technical support to successfully collect, integrate and deliver additional GIS data to the Montana State Library. MaPS, Inc. will provide ongoing technical support regarding water utilities

and field data collection at their current standardized hour rates (e.g. \$95.00/hr. for Project Manager; \$85.00/hr. for GIS Analyst and \$75.00/hr. for GIS Specialist) and expense rates (e.g. travel time at half the hourly rate and mileage at \$.79/mile; per diem at \$49.00 per day; lodging at cost plus 20%, etc.) MaPS, Inc. and the City of Shelby anticipate \$1,700.00 for approximately 20 hours of GIS Analyst support time.

Task 6 ~ City GIS Processing & Data Integration

The GPS field data will be post-processed into shapefiles and City GIS staff will load the new data to the geodatabase. Using the City’s older CAD and other engineering data for reference, City staff will create a generalized set of pipe network lines (e.g. by snapping lines between gate valves and fire hydrants and bisecting bilateral lines between mains and meter pits and curb stops) for the recently collected/mapped water utility point data.

City GIS staff will also create and attribute the generalized pipe network for the sewer and storm drainage systems. Manhole covers will be snapped point-to-point to create a generalized sewer system pipe network. Storm drains also will be snapped one to another (to create segments representing culverts). The initial pipe data will be attributed with more specific data (e.g. size/diameter, type, age, conditions, etc. - if known and available). The estimated cost for this Task is \$1,200.00.

After City GIS processing, MaPS, Inc. will review the data for accuracy and completeness. During the QA/QC review (for standardization of attribution, missing or incomplete attribution, unsnapped arcs, floating points, etc.), MaPS, Inc. staff will identify any points, lines or areas and will forward the discrepancies back to City staff for correction. MaPS, Inc. QA/QC services will provided as part of Task 5’s Ongoing Technical Support.

Task 7 ~ Grant Reporting & Closeout

The City will provide the State with quarterly status reports and draw requests as required to support the project. MaPS, Inc. will deliver the final GIS dataset to the State by June 30, 2016 including valid metadata for the proposed cost of \$680.00. The City will deliver to the State a Final Project Report including a financial status report by September 30, 2016 or as contractually negotiated. The City estimates \$1,100.00 in administration time for Mayor Larry Bonderud and Community Development Director, Lorette Carter.

Applicant budget summary

Category	MLIA Share	Applicant Share	Other Share	Total
a. Personnel		17,420		17,420
a.1 Fringe Benefits				
b. Travel				
c. Equipment	5,000	5,000		10,000
d. Supplies				
e. Contractual ~MaPS, Inc.	10,305			10,3055
f. Supplier Training & Consultation	3,250			3,250
Total	\$18,555	\$22,420		\$40,975

STEP 6 – Statements of Support

Statements of support must be included from any party listed as a project partner (see page six for the definition of a project partner). DO NOT include other statements of support as they will not be evaluated.

**If the proposal proposes to support MSDI framework layer(s), applicant must include a letter of support from the framework steward(s). See mandatory criteria # 3.*

STEP 7 – Renewable Grant Accountability Narrative

If the applicant received a FY2015 MLIA Grant for the same project or purpose, applicant must file a report documenting the progress made toward meeting the requirements of that grant. The report must include a status report on all tasks or deliverables included in the grant.

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.

Larry J. Bonderud _____

Name (print or type)

Mayor of Shelby, Montana _____

Title (print or type)

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

Date