MONTANA LAND INFORMATION GRANT APPLICATION

STATE FISCAL YEAR 2020

TOWN OF DUTTON, MONTANA
JULY 1, 2019 – JUNE 30, 2020

GIS Capacity Building for the Town of Dutton

SECTION 1 – APPLICANT, PARTNER, AND PROPOSAL INFORMATION

Primary Applicant Contact Information *(Please fill this section out in its entirety)*	
Name of Agency/Entity:	Town of Dutton
Department:	Public Works
Division/Section:	N/A
Street:	11 Main St. W
Town:	Dutton
County:	Teton
State:	Montana
Zip Code:	59433
Project Manager Contact Information:	
Name:	Susan Fleshman
Title:	Mayor, Town of Dutton
Email Address:	townofdutton@tetonwireless.net
Phone Number:	406-476-3311
Fax Number:	406-476-3311
Secondary Project Manager Contact Information:	
Name:	Jeremiah Kjensmo
Title:	Public Works Director
Email Address	jkjensmo@gmail.com
Phone Number:	406-476-3311
MLIA Grant Funding Request & Match:	
Total Requested MLIA Funds:	$32,285.00
Total Matched Funds:	$1,715.00

Proposal Information	
Date Submitted:	02/15/2019
Identified Grant Priority:	*Priority II:* Build Geographic Information Systems to Improve Local & Tribal Government Workflows, Business Processes, and Operations
Annual or Multi-Year Proposal:	Annual Proposal 2020
Proposal Prepared By:	Town of Dutton and Great West Engineering
Short Title of Proposal:	GIS Capacity Building for the Town of Dutton

Executive Summary (*required – 250 maximum word count*):

This project will help establish a Geographic Information System (GIS) program for the Town of Dutton. The project will help the Town locate, repair and replace infrastructure including water, sewer and stormwater. The scope of work includes the following tasks:

- Creating geodatabases for water, sewer, and stormwater infrastructure
- Purchasing equipment necessary for the project (laptop, GPS, ArcMap License)
- Collecting GPS data for the Town's infrastructure
- Compiling GPS data points, AutoCAD data and hardcopy infrastructure maps
- Creating a manual for data collection
- Creating a manual for data management and updating
- Training the Town staff on the use of GIS software
- Creating a set of electronic and hard copy maps that can easily be updated.

The proposed project meets the purpose of the Montana Land Information Act (MLIA) by creating a standardized process for the Town to collect and maintain spatial data. Through coordination with the Montana State Library, the Town staff will create GIS data using best practices and standards and thus give the Town a foundation for the further development and use of GIS. The Town understands that creating GIS capabilities will help more efficiently operate and maintain Town infrastructure and better share information with Town residents.

List All Past Awarded MLIA Grants:

The Town of Dutton has never received a previous MLIA Grant.

SECTION 2 – RELEVANCE

The Town of Dutton is proposing a project meet the grant priority, Development of Local and Tribal GIS, which is identified in the 2020 Montana Land Information Act grant application

guidelines. Dutton is an incorporated municipality of approximately 332 residents. The work proposed by the Town will begin the process of creating a GIS database that will support MSDI and MLIA through the completion of the following tasks:

- Creating geodatabases for water, sewer, and stormwater infrastructure
- Purchasing necessary equipment (laptop, GPS, ArcMap License)
- Collecting GPS data for the Town's infrastructure
- Compiling GPS data points, AutoCAD data and hardcopy infrastructure maps
- Creating a data collection manual
- Creating a data management and updating manual
- Training the Town staff on the use of GIS software
- Creating a set of electronic map templates that can easily be updated.

The project meets the purpose of the Montana Land Information Act (MLIA) by creating a standardized process for the Town to collect and maintain spatial data. Working with the Montana State Library, Dutton will create a GIS database using best practices and standards, thus giving the Town a solid foundation for the further development of GIS. The GIS data layers created will include water, sewer and stormwater infrastructure, as well as parks and trails.

The Town staff, particularly the Public Works Director, has years of institutional knowledge regarding the Town's infrastructure. While the creation of GIS data layers and a standardized process for the collection and maintenance of spatial data will be the deliverables of this project, the goals are much more important. The Town views this project as a method of allowing it to better undertake infrastructure planning and management.

SECTION 3 – PUBLIC BENEFIT

The project meets the general MSDI priorities as outlined in the FY2020 Montana Land Information Plan. Although the project does not fit into one of the specific themes outlined in the latest plan, the project will nonetheless support the overall purpose of MSDI. The project aligns closely with the transportation MSDI theme, primarily because water, sewer, and stormwater are essential infrastructure and are just as critical as transportation information in advancing MSDI goals.

The Town understands that a GIS database could be an invaluable method to accurately inventory and manage public infrastructure. Currently, the Town does not have a comprehensive inventory of infrastructure locations or their conditions. This creates challenges related to operations and maintenance. A standardized and accurate GIS database would improve the Town's understanding of its infrastructure and enable it to more efficiently and effectively manage its infrastructure.

Implementing GIS will also allow the Town to record and inventory critical information about its infrastructure including installation dates, upgrade dates, system conditions, and material types

used for repairs. This knowledge will lead to better management of the Town's assets and allow proactive maintenance and avoidemergency situationse.

GIS will not only increase the Town Public Works Department capabilities to manage infrastructure, but will help other Town departments with planning efforts including zoning, housing, and capital improvements.

Efficient management and operation of infrastructure will benefit residents. Improved management of assets will reduce emergency maintenance and costs, allow for proactive maintenance and upgrades, and thus save the Town's limited resources, and ultimately save taxpayers' dollars.

SECTION 4 – PROJECT MANAGEMENT AND ORGANZIATIONAL CAPABILITY

TOWN OF DUTTON (APPLICANT)

MAYOR – Susan Fleshman

Mayor Susan Fleshman will assist Great West with overall coordination of the project. She will schedule necessary meeting, assist in the preparation of quarterly reports and grant administration, and other miscellaneous tasks required for the successful completion of the project. Mayor Fleshman has experience working on a number of large infrastructure projects in Dutton that have utilized state and federal funding from programs such as SRF, TSEP, and DNRC.

PUBLIC WORKS DIRECTOR – Jeremiah Kjensmo

Jeremiah is the public works director in Dutton and will assist Great West Engineering in collecting data on the Town's infrastructure. Jeremiah will learn to use GPS technology to collect data on the location of the Town's infrastructure. He will also be trained in the use of ArcGIS Pro, which will be installed on his computer. Jeremiah has been working for the Town of Dutton for 7 years and is a certified water and wastewater operator.

GREAT WEST ENGINEERING (CONSULTANT)

The town of Dutton published a Request for Proposals in 2012 for on-call engineering and surveying services. Great West Engineering was selected as the Town's on-call provider following an evaluation process. The 7-year on-call contract was extended in 2019.The Town will continue to use the expertise of its consultant to complete this Montana Land Information Act GIS capacity project. The Consultant will aid the Town in data collection, GIS/GPS training and enable the Town to establish a GIS program. As the Town makes progress and collects GPS data, it will eventually be self-sustaining. The intent is to help the Town become self-sufficient in using GIS.

Great West will work with Town staff to collect data, perform training, and assist with data submission to the MSL. Great West will utilize its existing data and relationship with the Town of

Dutton to provide guidance about what is needed to produce meaningful infrastructure databases.

PROJECT COORDINATOR- Collette Anderson

Collette is a project manager with 13 years of engineering experience with an emphasis on municipal water and wastewater projects. Collette is known for her exceptional client communication, responsiveness, and easy to work with. Her background includes design, analysis, preparation of technical reports, grant writing, project management, construction management, and permitting. She also has significant experience with state and federally funded projects. Collette recently worked with the Town of Cascade and the Town of Sheridan on their GIS projects and will serve at Great West's project manager responsible for the overall coordination and direction of the project. She will be responsible for project budget, schedule, and quality control. She is a graduate of Montana Tech and is a licensed professional engineer in Montana and Idaho.

GIS TECHNICIAN – Evan Norman

Evan Norman will serve as the GIS Technician for this project. Evan is highly experienced with preparing GIS-based maps. He has over four years of experience developing comprehensive GIS maps including base maps showing surrounding areas, boundaries, road and street systems, public properties, streams, and floodplains/wetlands. Most recently, Evan has used his GIS abilities to build spatial data libraries and produce map exhibits for engineering studies and reports, grant proposals, watershed assessments, zoning, and land use planning, utility infrastructure inventories, open cut mine planning, and stream permitting. Also, Evan has recently helped the Towns of Cascade and Sheridan close out MLIA grants and is currently working on MLIA funded projects in Red Lodge and Harlem.

SENIOR CADD SPECIALIST – Bret Anderson

Brett Anderson will assist the GIS technician and City with collecting and compiling existing CADD data related to the Town of Dutton. Brett has assisted with previously MLIA funded Sheridan and Cascade projects.

PROJECT ASSISTANCE

Great West will provide Project Assistance including compiling, formatting and printing the data collection manuals.

SECTION 5 – SCOPE OF WORK

Listed below are the goals and objectives to build a GIS for the Town of Dutton. The goals and objectives are in chronological order, and generally, each goal and objective depend upon the previous goals and objectives being completed. The associated tasks and activities are listed under each objective. The Town staff will be working directly with the consultant at every step to complete the objectives listed.

GOAL 1: Create GEODATABASES FOR TOWN OF DUTTON DATA COLLECTION
- *Objective 1A: GIS strategy building*

Task 1A: Town staff will meet with the Consultant to discuss data collection schema and strategy. Setting up a plan will streamline data collection and post-processing and will ensure the end-product GIS aligns with Town expectations and expected use.

- *Objective 1B: Establish infrastructure file geodatabase framework*

Task 1B: The Town and Consultant will build individual geodatabases for water, sewer, and stormwater infrastructure. These geodatabases will include appropriate field names, field types, etc. to allow for attributing individual features with necessary infrastructure information.

- *Objective 1C: Establish field collection geodatabase*

Task 1C: The Town and Consultant will build a single geodatabase for the collection of water, sewer, and stormwater location information in the field. This geodatabase will include individual layers for water, sewer, and stormwater infrastructure and will include domains, feature classes, and fields to streamline field data collection.

GOAL 2: ENABLE THE TOWN OF DUTTON TO COLLECT GIS DATA

A major component of this project will involve providing the Town of Dutton with the tools and knowledge to participate in the development of their GIS and further improvement and maintenance of their GIS in the future. This goal will net cost savings in project implementation and give the Town the opportunity to practice their capacity in GIS building, maintenance, and use.

- *Objective 2A: Data collection equipment purchasing*

Task 2A: Town staff will purchase a GNSS receiver for collecting location information of buried infrastructure at sub-meter accuracy. The GNSS receiver will be a Trimble R1. The Town will purchase a wireless smart device (such as a small digital tablet) for operating the GNSS receiver in the field and collection position and attribute data of infrastructure. In addition to the tablet, the Town will purchase a high capacity laptop capable of handing ArcGIS software.

- *Objective 2B: Customized Data Collection Manual*

Task 2B: The Town's Consultant will create a data collection manual that will direct Town staff on how to operate field data collection equipment and collect location data of Town infrastructure. The guide will also include guidance on troubleshooting.

- *Objective 2C: Data Collection Training for Town Staff*

Task 2C: The Town's Consultant will provide the Town Public Works Director and another staff member on the training on the use of a data collection unit in the collection of spatial data for the Town's infrastructure. The Public Works Director and other Town staff will collect location information of the Town's infrastructure.

- *Objective 2D: Collect Town Infrastructure Location Data*

Task 2D.1: Collect the Town's water system feature location data. Location information of water system manholes, valves, hydrants, and curb stops will be collected within the incorporated boundary of the Town of Red Lodge. The majority of this field data collection work will be completed by Town staff with some assistance from the Consultant.

Task 2D.2: Collect Town wastewater system feature location data. Location information of wastewater system manholes, pump houses, and sewer treatment system will be collected within the incorporated boundary of the Town of Dutton. The majority of this field data collection work will be completed by Town staff with some assistance from the Consultant.

Task 2D.3: Collect Town stormwater system feature location data. Location information of the stormwater manholes, drains, cleanouts, and discharge points will be collected within the incorporated boundary of the Town of Dutton. The majority of this field data collection work will be completed by Town staff with some assistance from the Consultant. This data may be augmented with AutoCAD data from recent construction of this system.

GOAL 3: ENABLE THE TOWN OF DUTTON TO BUILD THEIR GIS

The majority of infrastructure data will be collected at point locations (e.g., manholes, hydrants, drains) and the locations of buried pipes between these point features will be interpolated in GIS using a combination of as-built data and institutional knowledge. This third goal will involve a collaboration between the Town's consultant and Town staff to process and export collected location information into the Town's infrastructure GIS.

- *Objective 3A: Compile existing information on Town Infrastructure*

Task 3A: Town staff and its Consultant will work to compile information on infrastructure from data sources such as hard copy maps, AutoCAD, and institutional knowledge among Town staff.

- *Objective 3B: Develop processed data prototype*

Task 3B:. Data processing will include importing location information into the Town's infrastructure GIS, attributing the data, and incorporating connecting line features such as pipelines and mains. This task will be completed early in the data collection timeline to ensure the field data collection process is providing adequate information and to test the workflow before additional data is collected.

- *Objective 3C: Customized Data Processing Manual*

Task 3C: The Town's Consultant will create a data processing manual that will direct Town staff on how to process field data from the field collection geodatabase to the Town Infrastructure Geodatabases. A majority of the data collected in the field will be point locations classified into water, sewer, and stormwater layers. This manual will instruct Town staff on the steps on how to import field location data into the Town's infrastructure geodatabase framework. The manual will also instruct on how to edit and attribute data within the Town's infrastructure geodatabase.

- *Objective 3D: Data Processing Training for Town Staff*

Task 3D: The Town's Consultant will provide the Town Public Works Director on the use of ArcGIS to process collected location data into the final infrastructure geodatabases.

- *Objective 3E: Build Town Infrastructure GIS*

Task 3E.1: Process collected Town water system feature location data into Town's water system geodatabase.
Task 3E.2: Process collected Town wastewater system feature location data into Town's water system geodatabase.
Task 3E.4: Process collected Town stormwater system feature location data into Town's water system geodatabase.

GOAL 4: GENERATE HARD COPY MAPS, DELIVER DATA TO STATE LIBRARY, AND COMPLETE FINAL GIS PLANNING AND TRAINING

This final goal will include project closing with tasks that have the objective of finalizing the Town's infrastructure GIS with data packaging and delivery to the State Library, printing of final

maps for the Town's use, and completing final GIS planning and training with Town Staff by the Consultant to ensure the Town can continue with stewardship of their GIS with clarity on how to continue collecting data and modifying their data as the Town grows and possibly includes service areas outside the Town boundary into their GIS.

- *Objective 4A: QA/QC of Town's infrastructure geodatabases*

Task 4A.1: Print draft maps of Town's infrastructure including a map for the water wastewater stormwater systems for a QA/QC review.

Task 4A.2: Meeting between Consultant and Town staff to review maps of all collected and processed infrastructure data with the opportunity to correct errors and to discuss future planning of the GIS.

- *Objective 4B: GIS final data submittal to the Montana State Library*

Task 4B.1: The Town's Consultant will complete final edits to Town infrastructure GIS data, and the Town will submit the data to the Montana State Library.

- *Objective 4C: Consultant completes final training and collaborative work session with Town staff*

Task 4C.1: Consultant meets with Town staff to complete final training and deliver the comprehensive manual that includes a chapter on data collection and a chapter on data editing and maintenance that will enable the Town to continue with managing and utilizing their new infrastructure GIS.

- *Objective 4D: Consultant delivers final high-quality maps*

Task 4D.1: Following final meeting and overview of maps, the consultant will send three (36" x 48") maps in the mail to the Town for referencing and to begin maintaining and updating maps into the future.

PROJECT TIMELINE

Task(s)	July 2019	Aug. 2019	Sept. 2019	Oct. 2019	Nov. 2019	Dec. 2019	Jan. 2020	Feb. 2020	Mar. 2020.	Apr. 2020	May 2020	June 2020
Procurement of consultant was completed in February 2019												
Goal 1: Create Geodatabases for the Town of Dutton Data Collection and Infrastructure												
Objective 1A: GIS strategy building	X											
Objective 1B: Establish infrastructure file geodatabase framework		X	X									
Objective 1C: Establish field collection geodatabase		X										
Goal 2: Enable the Town of Dutton to Collect GIS Data												
Objective 2A: Data collection equipment purchasing	X	X										
Objective 2B: Customized Data Collection Manual		X	X									
Objective 2C: Data Collection Training for City Staff			X									
Objective 2D: Collect City Infrastructure Location Data		X	X	X	X							
Goal 3: Enable the Town of Dutton to Build Their GIS												
Objective 3A: Compile existing information on City Infrastructure	X	X	X	X	X	x						
Objective 3B: Develop processed data prototype			X	X	X							
Objective 3C: Customized Data Processing Manual								X	X	X	X	X
Objective 3D: Data Processing Training for City Staff				X							X	X
Objective 3E: Build City Infrastructure GIS			X	X	X	X	X	X	X	X		
Goal 4: Generate Hard Copy Maps, Deliver Data to State Library, and Complete FINAL GIS Planning and Training												
Objective 4A: QA/QC of City's infrastructure geodatabases						X	X	X	X	X	X	
Objective 4B: GIS data submittal to the Montana State Library												X
Objective 4C: Consultant completes final training and collaborative work session with City staff											X	
Objective 4D: Final Map sent and delivered to Town of Dutton via consultant												X

SECTION 6 – BUDGET JUSTIFICATION AND BUDGET TABLE

The estimated cost of this project is $34,000.00. This application is requesting $32,285.00 from MLIA grant funding. The Town of Dutton will utilize funds from the MLIA to purchase necessary equipment and provide contractual time to ensure that the project is carried out correctly

PERSONNEL

The Town of Dutton Public Works Director will be involved in the following tasks: compiling hard copy maps, existing digital files, and providing institutional knowledge on the current

infrastructure locations. Also, the public works director will collect GPS points in the field on water, stormwater, and wastewater systems and be trained on GIS. The Public Works director and additional members of the town will assist in the quality assurance and quality control of the infrastructure location data and maps ensuring that it is as complete as possible.

The task for the Public Works Director is as follows: 8 hours for data collection training, 50 hours for data collection, 12 hours for quality assurance of maps created with GPS collected data and AutoCAD information, 8 hours for GIS training management and 4 hours for delivery of information to the State Library. The estimated total hours for the Public Works Director are 82 hours throughout the project duration.

TRAVEL

No travel is anticipated for Town staff. The Consultants travel time is included under the contractual section.

EQUIPMENT

The Town will purchase a GPS GNSS R1 Trimble unit from Frontier Precision based out of Missoula, Montana. The R1 has a sub-meter accuracy and has provided excellent data collection for previous MLIA recipients with the scope of works. In order to reduce the budget, the Town will mount the receiver on a 2-meter PVC pipe opposed to the carbon fiber range pole. The compatibility of the R1 receiver with Collector for GIS allows easy transfer of data from any geodatabase hosted on a smartphone or tablet, to ArcOnline and Arc Pro for editing. Purchasing a data collection unit allows flexibility for the Town to collect data during periods where maintenance on current infrastructure is not pressing and to continue collecting data as new infrastructure comes online. The Town will budget in a high-capacity computer with the ability to handle ESRI documents and to host GIS information. The Town may utilize purchased equipment to begin collecting other types of data into the future which will help better manage resources. The estimated cost for equipment is $6,000.

SUPPLIES

The Contractor will print and deliver 36" x 48" high-resolution, high-quality maps for the Town to have on record as a capstone for this project. The estimated cost of printing and mailing the maps is $140.00.

CONTRACTUAL

A GIS Specialist will spend approximately 234 hours including travel to and from Dutton for training, creating geodatabases, compiling existing data, creating metadata, creating a training and data management manual, and aiding the Town of Dutton to deliver requirements to the Montana State Library. The total cost including travel and labor and any necessary lodging costs for overnight trips while performing staff training is estimated at $20,465.00.

A Project Coordinator will provide 15 hours of project oversight, review, and communication with the Town of Dutton as necessary for an estimated cost of $2,100.

A CADD specialist will provide the location of existing infrastructure data and deliver it to the GIS Specialist utilizing 20 hours of support for an estimated total of $2,200. Likewise, a Planner will assist the Town of Dutton and the GIS Specialist for an estimated total cost of $1,380.

<u>STATEMENTS OF SUPPORT</u>

N/A

MLIA GRANT BUDGET SUMMARY TABLE

MLIA GRANT BUDGET SUMMARY					
	MLIA Summary	**Applicant Summary**			**Total:**
Category	MLIA Share	Applicant Cash	Applicant In-kind	Applicant Subtotal	**MLIA Share, Applicant Subtotal, Partner Subtotal**
a. Personnel					
a. 1. Fringe Benefits			$1,715.00		
b. Travel					
c. Equipment	$6,000.00				
d. Supplies & Materials	$140.00				
e. Contractual	$26,145.00				
f. Other					
Total	32,285.00		$1,715.00		$34,000.00
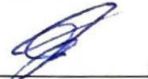
SECTION 7 – RENEWABLE GRANT ACCOUNTABILITY

The Town of Dutton will be a first-time recipient of MLIA funding. However, the Town has significant experience managing infrastructure projects funded with state and federal loan and grant dollars. For example, the Town is currently completing Phase 1 of a water system improvements project financed by Montana's State Revolving Fund (SRF) and the U.S. Army Corps of Engineers' Water Resource Development Act Program.

Also, in 2011, the Dutton completed a $1.8 million wastewater project that included funding from the Montana Department of Commerce Treasure State Endowment Program (TSEP), DNRC's Renewable Resource Program, and the SRF Program. At the end of the project, TSEP Engineer Kate Miller stated the Town and its consultant*, "have been conscientious in their efforts and have done a good job of managing the TSEP grant and the project."*

SECTION 8 – CHECKLIST

Applicant's Project Manager, defined Section 1, must initial in ink or mark 'n/a' if a section is not applicable.

Initial or mark n/a	Completed Required Task
[initialed]	**Proposal Prepared by an outside party – I have read this document in its entirety.** *(if applicable)*
[initialed]	**Section 1 – Applicant, Partner, and Proposal Information**
[initialed]	Primary Applicant Information
N/A	Funding Partner *(if applicable)*
[initialed]	Proposal Information
N/A	List All Past Awarded MLIA Grants
[initialed]	**Section 2 – Relevance** *(300 max word limit)*
[initialed]	**Section 3 – Public Benefit** (if applicable)
[initialed]	**Section 4 – Project Management** (if applicable)
[initialed]	**Section 5 – Scope of Work Narrative** *(4-page limit)*
[initialed]	**Section 6 – Budget Justification Narrative and Table** *(3-page limit)*
[initialed]	Budget Justification Narrative
[initialed]	Complete Budget Table
[initialed]	**Section 7 – Funding Partner Statements of Support** *(if applicable)*
N/A	**Section 8 – Renewable Grant Accountability Narrative** *(if applicable)*
N/A	FY2019 Grantee Report *(if applicable)*
N/A	Past MLIA Grant Project Narratives (FY2018 - FY2015) *(if applicable)*
[initialed]	**Section 9 – A Signed Authorizing Statement**

SECTION 9 – AUTHORIZING STATEMENT

Authorizing Statement

I hereby certify that I have read the application and 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.

Susan Fleshman
_____

Name (print or type)

Mayor
_____

Title (print or type

Susan Fleshman
Susan Fleshman

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

2-14-19
_____

Date