MONTANA LAND INFORMATION GRANT APPLICATION
STATE FISCAL YEAR 2019

Fort Benton
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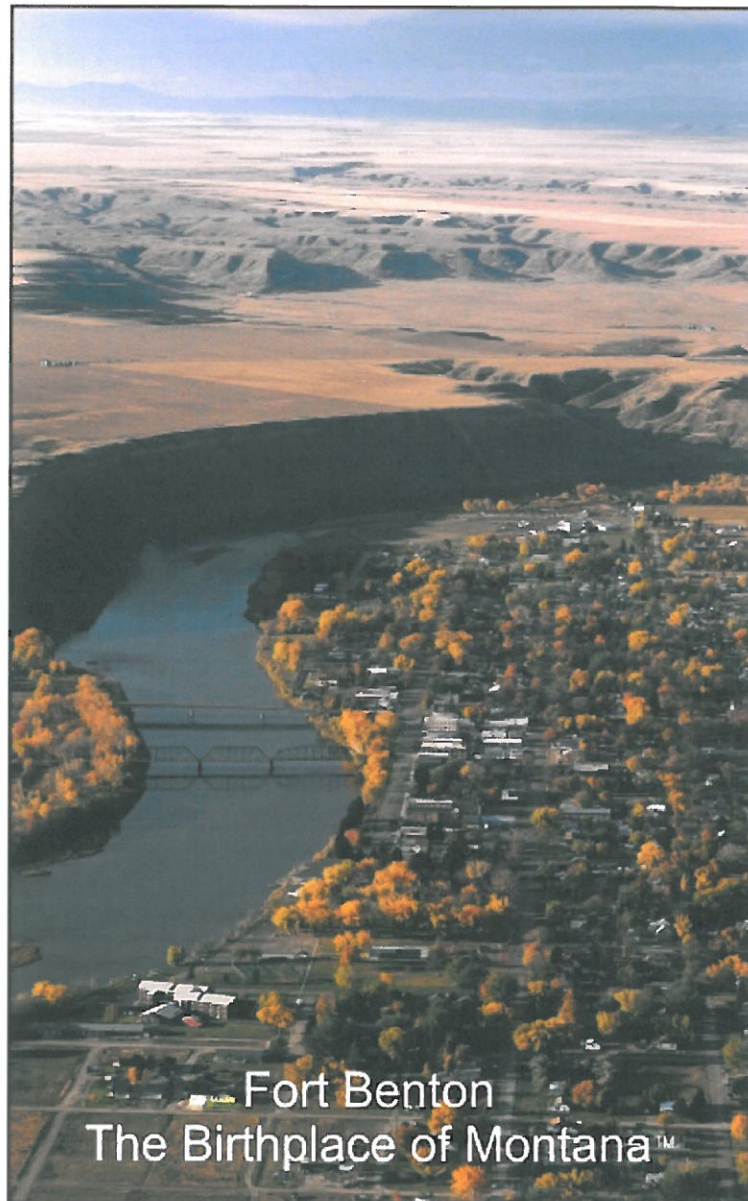
February 15, 2018

City of Fort Benton, MT
Public Utilities GPS/GIS Mapping Project

SECTION 1 – APPLICANT, PARTNER, AND PROPOSAL INFORMATION

Primary Applicant Contact Information	
(Please fill this section out in it entirety)	
Name of Agency/Entity:	**City of Fort Benton**
Department:	**Public Works**
Title/Name:	**Mayor Richard Morris**
Street:	**1204 Front Street**
City:	**Fort Benton**
County:	**Chouteau**
State:	**MT**
Zip Code:	**59442**
Email Address:	**fbenton@itstriangle.com**
Phone Number:	**406-622-5494**
Project Manager Contact Information:	
Name:	**Skip Ross**
Title:	**Public Works Superintendent**
Email Address:	**waterguy@fortbenton.com**
Phone Number:	**406-621-5277**
Secondary Contact Information:	
Name:	
Title:	
Email Address	
Phone Number:	
MLIA Grant Funding Request & Match:	
Total Requested MLIA Funds:	$19,480
Total Matched Funds:	$23,188

Proposal Information

Date Submitted:	**February 15, 2018**
Identified Grant Priority:	**Build Geographic Information Systems to Improve Local & Tribal Government Workflows, Business Processes, and Operations**
Annual or Multi-Year Proposal:	*Multi-Year Proposals – Identify current year of project and I applicable past years funded, and future years desired.*
Proposal Prepared By:	**City of Fort Benton, MT**
Short Title of Proposal:	**Public Utilities GPS/GIS Mapping Project**

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

The City of Fort Benton (the City) is applying for MLIA funding to develop and support a GIS by locating and accurately mapping with GPS the public utilities infrastructure in the community. This project will offer the community a highly accurate set of utility GPS/GIS data points, which can be layered with existing County and State data to provide a healthy "big picture" of the local area and inform local decision-making.

List All Past Awarded MLIA Grants:

Funding Partners:	
(required for each partner, copy box as needed)	
Name of Contact:	
Name of Agency:	
Street:	
City:	
County:	
State:	
Zip Code:	
Contact Email Address:	
Contact Phone Number:	

SECTION 2 – RELEVANCE

The City of Fort Benton (the City) is applying for MLIA funding to develop and support a GIS by locating and accurately mapping with GPS the public utilities infrastructure in the community. This project will offer the community a highly accurate GPS/GIS set of utility data points (e.g. the water, sewer and stormwater systems). This data can then be combined with Chouteau County's 9-1-1 data (street centerlines and structure points), the State's cadastral/parcel data, and the USDA's satellite imagery to create a healthy utility network for the local area. Fort Benton recognizes that GIS can be a valuable tool to assist decision making, planning, development and other municipal functions.

Mapping vital public infrastructure like the water, sewer and storm drain systems will facilitate service to Fort Benton's citizens and businesses and assist decision making now and in the future. This project will give the City the tools, training and equipment to efficiently utilize GIS with GPS to accurately develop – and maintain - valuable data. The MLIA program offers the City an opportunity to develop a substantial digital dataset that can be used now and in the future to improve quality of life for the City, Chouteau County and Montana citizens.

SECTION 3 – PUBLIC BENEFIT

This project will allow the City to readily locate utility infrastructure – which will offer the following public benefits:

1) The City of Fort Benton believes that mapping of the water network and sewer and storm water drainage systems is critically important to support effective protection of the local resources like the Missouri River. The City is generally "low" and has a substantial area within the 100 year floodplain of the Missouri River. Understanding how the City's storm drainage system connects to local ditches and the Missouri River may foster mitigation projects or measures to reduce the potential for flooding and more readily stop contamination from spreading. The City believes that mapping of the water, sewer and storm water drainage systems is critically important to support effective protection of the local area.

2) Locating, mapping and documenting fire hydrant locations will improve fire protection and may lower insurance rates for residents. The GIS data will be used by the City's water utility staff to locate critical infrastructure for repair and replacement and to more effectively plan future projects. The GIS data will also help telecommunications and electric utility companies in line location by providing efficient and exact information for homeowners as well as commercial enterprises for repairs, replacements and new projects.

3) The GIS data will assist Public Works staff to more effectively service the community by preventing winter snow, overgrown landscaping or fall leaves from hampering utility location efforts.

GPS/GIS technology will help the City with effective decision making and improve its ability to promote and support local and regional economic planning and development. GIS data is being used more and more for public and private needs. This project will assist engineering design, financial estimates and bidding processes for public improvement and private development projects in and around the City.

SECTION 4 – PROJECT MANAGEMENT AND ORGANZIATIONAL CAPABILITY

Grant Administrator will be provided by Mayor Richard D Morris (Mayor). Richard will work directly with the Public Works Dept. and the Contractor to monitor the project and conduct the required State reporting and administrative duties for successful project completion. Rick Morris started on the City council in 1990, became Mayor in 1998 and is serving his 6th term. He has worked with TSEP, CTEP, CBDG, SRF, RD, RRGL on various projects. Rick is also a board member with Bear Paw Development in Havre, MT. Mayor Rick Morris will also assist with project management to assure that reporting and administrative duties are completed promptly.

Project Management will be provided by the Public Works Superintendent, Skip Ross (PW1). Skip will work directly with the Mayor, Public Works staff and the Contractor to ensure that the City field staff understand their duties and schedule for locating and exposing/marking the water infrastructure based on the proposed collection areas. Skip will also be responsible for QA/QC reviewing the final field data against existing legacy records for accuracy and attempting to resolve any missing or unknown information. Skip Ross served the City for 25 years and became Public Works Superintendent in 2017. He has been involved with TSEP, CTEP and SRF. Some of these projects included a sewer lagoon upgrade, a walking trail, visitor center upgrade and various other projects throughout the years.

Public Work staff conducting the pre-canvass locating/marking of the water utilities - and assisting the Contractor with data collection - are Street Superintendent Nate Nash (PW2) and laborers Kelly Olson and Jason Burley (PW3s). The City crew will be supervised by Skip Ross.

It is proposed that this project be contracted to Mapping and Planning Specialists, Inc. (MaPS, Inc.). MaPS, Inc. has been in business since 2000, has successfully completed multiple contracts with other City and County agencies in Montana and the region and has a reputation for providing quality GPS/GIS services. MaPS, Inc.'s personnel have extensive experience in GPS field data collection, GIS development and E-911 implementation and have worked on over fifty projects in many states across the nation. MaPS Inc. has successfully completed similar utility mapping projects for the Town of Sweet Grass (MLIA_2014_09), the City of Shelby, MT (MLIA_2015_05 & MLIA_2016_03), the Town of Superior (MLIA_2016_06) and, most recently, the City of Conrad. Their previous utility mapping projects are of similar scope to the City's proposed project and they have demonstrated a thorough understanding of the required GPS/GIS services. MaPS, Inc. is Chouteau County's E-911 & GPS/GIS Consultant and has a nearly 20 year relationship with them. The City believes that MaPS, Inc. has provided a reliable and fair project cost that is a good use of MLIA grant funding.

Matthew Pearce is MaPS, Inc.'s President and company Founder. 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 E-911/GPS/GIS fields for over 24 years and is a certified Emergency Numbering Professional (ENP) and a member of the National Emergency Numbering Association (NENA). MaPS, Inc. is currently providing E-911/GPS/GIS services for a significant number of MT counties, including Toole, Pondera, Chouteau, Valley, Granite, Mineral and Sanders. MaPS, Inc. specializes in GPS field data collection and GIS processing, including on-site project coordination and training and has a hard-earned reputation of providing clients with high quality data and excellent customer service.

SECTION 5 – SCOPE OF WORK

To serve the community and local area's public and private needs for public utilities data, the City wishes to develop a GIS based on GPS mapping. This project will complete the water system portion of the utilities mapping, which will foster the training and experience needed for the City to become self-sufficient and map the sewer and storm portions of the utilities mapping with minimal support.

Goal 1: Develop a GIS for the City's public utilities infrastructure.

Objective 1.1: Execute a Memorandum of Understanding (MOU) with the County (May/June 2018) and a Letter of Agreement (LOA) with the proposed Contractor (July 2018).

Task 1.1: The City will work with the County Commissioners to create and ratify a long-term GIS data sharing agreement that benefits all parties (e.g. the County will share their E-911 data – structure points, road centerlines, City limits, etc. and the City will share their utility data to support local emergency response). The City will work with our proposed experienced utilities mapping Contractor to define a Project Scope of Work that covers the Goals, Objectives and Tasks in this application and lays out terms for performance, compensation, insurance, records, data ownership, severability, indemnification, discrimination, etc. to protect both parties and implement the project.

Objective 1.2: Create a public utilities GIS schema (water, sewer and storm drain systems) (July 2018).

Task 1.2: The City understands that several previous MLIA grants of a similar scope were executed successfully by our proposed Contractor in nearby communities. Water features that the City intends to collect are curb stops, gate valves, meter pits and fire hydrants. The sewer system will involve manhole covers and lift stations. The stormwater system will include storm drains, manhole covers and inlet/outlet points. The field types, field names, field values, etc. are reflected in an initial data specification as attached in Appendix A. These initial data specs will be reviewed by the City against our needs with the Contractor (via teleconference). The Contractor will explain and educate the City staff on how/why the initial specifications were derived and detail what worked well on the previous projects to ensure the City benefits from these experiences. The initial specification will be revised until approved for inclusion in the final geodatabase (GDB - a file management structure that contains all of the GIS data) that will be used to configure the field data collection software. The eventual pipe network features and fields are also included in the preliminary data specs and the GDB will also include them (for eventual attribution).

Objective 1.3: Develop a project plan/schedule (July 2018).

Task 1.3: The City and the Contractor will work together to develop a project plan and schedule to effectively and efficiently implement the proposed plan. Pre-defined field data collection areas will be determined by breaking up the City into 3 or 4 manageable chunks, such as 10-12 square blocks at a time, and a mutually agreeable schedule will be prepared that will complete the fieldwork between August through October 2018. In order to complete the field collection in a timely manner, City staff will locate and mark (dig

up/expose and spray paint bright blue) water infrastructure in a planned area 2-3 weeks prior to the Contractor being on-site for field collection. This will allow the Contractor to be on-site the following week, or roughly once a month, for 2-3 days each trip (Monday-Friday). Public Works staff will be responsible for ensuring no known water points are missed. Public work staff intend to use the training and Field Data Collection System provided by the Contractor to map and attribute the sewer and storm drain networks internally (see Goal 2).

Objective 1.4: Purchase the GPS/GIS hardware/software (June 2018).

Task 1.4: The City intends to utilize ESRI GIS products: ArcGIS Desktop and/or ArcGIS Pro for data management; ArcGIS Online for data management and data collection; and Collector for field data collection and maintenance. The City will acquire one (1) ArcGIS Desktop license, which the Contractor will install on a designated City desktop computer. The ArcGIS Desktop license will afford the City with one (1) ArcGIS Online (AGOL) subscription and the City will also acquire one (1) additional Named User AGOL subscription. The Contractor will provide the City with a proven Field Data Collection System (FDCS) (e.g.; a ruggedized field computer/tablet paired with a wireless sub-meter GPS receiver mounted on a range pole) as detailed in Appendix B (sample). To demonstrate the City's commitment to implementing this project, the City will directly purchase all of the hardware/software to be used the proposed project and for ongoing infrastructure maintenance. To get the project jumpstarted, the City also intends to purchase the necessary hardware/software after grant award notification (May) and before the State issues an SOW (July).

Objective 1.5: Set up/test the ESRI software and FDCS (July 2018).

Task 1.5: The Contractor will set-up the City's AGOL account and acquire relevant and existing digital basemap layers (e.g. parcel polygons, hydrography, etc.) and/or background imagery (e.g. 2017 NAIP digital orthophotos) from the County or 3rd party data sources (e.g. the State of MT, USDA, etc.). The datum, projection and units used will be NAD83, State Plane, Meters. The GDB will be published to the AGOL account to enable use of the Collector app for field data collection. Contractor will test the software and hardware set-up to ensure proper output to the GIS schema prior to on-site fieldwork.

Objective 1.6: Locate, expose and mark existing water infrastructure (Aug – Oct 2018).

Task 1.6: The City public works staff will canvass the planned collection areas to locate, expose (dig down to or clear away debris/soil) and mark (with bright blue paint) the water utilities (e.g. curb stop water shut-offs, gate valves, meter pits, etc.). Fire hydrants will not need to be marked.

Objective 1.7: Conduct the GPS/GIS field data collection (Aug – Oct 2018).

While the GDB and ArcGIS Online setup will allow for the City to collect all utility systems, the Contractor will assist the City with the GPS mapping of only the water utility portion. The City hopes to be self-sufficient in its mapping and GIS capabilities after the Contractor has completed training the City with the FDCS and mapping/attribution procedures – and will be able to map the sewer and storm drain systems internally – as well as maintain all

of the utility infrastructure mapping as new features are added or existing features are modified or replaced.

The City estimates the following numbers of water utility features to be collected:

Water System		
	Curb Stops	760
	Gate Valves	300
	Meter Pits	15
	Hydrants	90
	Total	1,165

Task 1.7: The entire City will be systematically canvassed based on the project plan with the field crew (e.g. Contractor working directly with one or more City Public Works staff members) to collect point data using the FDCS on all the previously located/marked water infrastructure. The field crew will be very visible (e.g. reflective/bright clothing and use flashing safety lights for traffic areas).

Objective 1.8: GIS processing and QA/QC (Nov 2018 – Mar 2019).

Task 1.8: Using the City's current CAD data (or other City-supplied supplemental materials, such as copies of engineering as-built documents or plats) for reference, the Contractor will be tasked with creation of an initial set of pipe network line features. The initial pipe networks will contain fields as defined in the attached GIS data specification and will be attributed with specific data (e.g. with pipe type, install date, material/type, size/diameter, etc.). The initial data will be attributed by the Contractor and presented to Public Works staff for discrepancy review and discussion. Data discrepancies between the field data and CAD records will be resolved and the mapped points and pipe network updated based on the City feedback. As such, City staff will be active participants in the quality assurance and quality control (QA/QC) process.

Goal 2 – GPS/GIS Training for Ongoing Mapping and Data Maintenance (Apr 2019).

Objective 2.1: On-site GPS/GIS training of City Public Works staff.

Task 2.1: The Contractor will train applicable City staff on ArcGIS Basics (e.g. software familiarization – learning how to open a map project, zoom/pan, query, print, etc.). The Contractor will also train applicable staff on how to do editing in the ArcGIS Online environment (e.g. data entry, attribution/maintenance of the pipe network, etc.) for continued data maintenance. The GPS/GIS Contractor will demonstrate the FDCS on sewer and storm water points and train City staff to use it for locating existing/mapped water infrastructure and to add any new infrastructure as the City grows. On-site training will also cover GIS processing, including creation and attribution of the sewer and storm drain pipe network.

Objective 2.2: Ongoing Technical Support (Apr – June 2019).

Task 2.2: The contractor will also provide the City with ongoing Technical Support for the proposed GPS/GIS solution at standardized hourly labor and expense rates to support the City during their maintenance tasks. Four (4) hours of telephone Technical Support are included in the proposal.

Goal 3: Project Reporting & Data Deliverables.

Objective 3.1: The City will provide the State with the required grant status reports.

Task 3.1: The City will deliver quarterly progoress reports to the State as well as a Final Project Report by June 30, 2019.

Objective 3.2: The Contractor will be expected to deliver the final GIS dataset to the State.

Task 3.2: The Contractor will deliver the final GIS dataset to the State by June 30, 2019, including valid metadata.

Project Schedule

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

FORT BENTON - PUBLIC UTILITIES GPS/GIS MAPPING PROJECT (FY 2019)		MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
Grant Award Notification		XXX													
1.4 City Purchases GPS/GIS Hardware/Software			XXX												
Grant Statement of Work Issued				XXX											
1. Develop GIS for the City's public utilities															
1.1 City/County MOU (Draft/May - Final/June)	MAYOR	XXX	XXX												
1.1 City/County MOU (Draft/May - Final/June)	PW1	XXX	XXX												
1.1 City/Contractor LOA	MAYOR			XXX											
1.1 City/Contractor LOA	PW1			XXX											
1.1 City/Contractor LOA	CNSLT			XXX											
1.2 Create a public utilities GIS schema	CNSLT			XXX											
1.2 Create a public utilities GIS schema	PW1			XXX											
1.3 Develop a project plan/schedule	CNSLT			XXX											
1.3 Develop a project plan/schedule	PW1			XXX											
1.5 Set up/test the ESRI software and FDCS	CNSLT			XXX											
1.6 Locate, expose and mark water utilities	PW1			XXX	XXX	XXX	XXX								
1.6 Locate, expose and mark water utilities	PW2				XXX	XXX	XXX								
1.6 Locate, expose and mark water utilities	PW3				XXX	XXX	XXX								
1.7 GPS/GIS field data collection (1165 pts)	CNSLT				XXX	XXX	XXX								
1.7 Conduct the GPS/GIS field data collection	PW1				XXX	XXX	XXX								
1.7 Conduct the GPS/GIS field data collection	PW2				XXX	XXX	XXX								
1.7 Conduct the GPS/GIS field data collection	PW3				XXX	XXX	XXX								
1.8 GIS processing and QA/QC	CNSLT					XXX	XXX	XXX	XXX	XXX	XXX	XXX			
1.8 GIS processing and QA/QC	PW1							XXX	XXX	XXX	XXX	XXX			
1.8 GIS processing and QA/QC	PW2							XXX	XXX	XXX	XXX	XXX			
2. GPS/GIS Training															
2.1 On-site GPS/GIS training of PW staff	CNSLT												XXX		
2.1 On-site GPS/GIS training of PW staff	PW1												XXX		
2.1 On-site GPS/GIS training of PW staff	PW2												XXX		
2.1 On-site GPS/GIS training of PW staff	PW3												XXX		
2.2 Ongoing Technical Support	CNSLT												XXX	XXX	XXX
3. Project Reporting & Data Deliverables															
3.1 Quarterly progress reports & final report	MAYOR					XXX			XXX			XXX			XXX
3.1 Quarterly progress reports & final report	PW1					XXX			XXX			XXX			XXX
3.2 Final GIS data/metadata submittal	CNSLT														XXX

SECTION 6 – BUDGET JUSTIFICATION AND BUDGET TABLE

The costs for in-kind labor, equipment, contracted services, etc. for the proposed project include the following (MLIA Share for Contractor hours listed only):

1. Public Utilities GIS Development (186 hours).
   1.1. City/County MOU and City/Contractor LOA (4 hours).
   1.2. Create a public utilities GIS schema (4 hours).
   1.3. Develop a project plan/schedule (2 hours).
   1.4. Purchase the GIS software and GPS/GIS hardware
        The City intends to purchase all of the hardware/software needed for the proposed project internally/directly. Costs are only listed here to demonstrate to the State the City's intended expenditures to support the State's MLIA contributions.

(1) ArcGIS Desktop License	$1,500
(1) ArcGIS Online Level 2 Subscription	500
(1) Ruggedized Tablet Computer & Accessories	1,800
(1) Sub-meter GPS Receiver & Accessories	2,700
	$6,500

   1.5 Set up/test the ESRI software and FDCS (40 hours).
   1.6. Locate, expose and mark the water utility infrastructure.
   1.7. Conduct the GPS/GIS field data collection (69 hours). Contractor has offered a cost to conduct field data collection of $5 per point which includes all on-site labor and expenses. There are 1,165 anticipated points for a total estimated Contractor labor cost of $5;825.
   1.8 GIS processing and QA/QC (69 hours). Contractor has offered a cost to conduct the GIS processing/attribution for $5/point which includes all off-site labor and expenses, or for 1,165 points, $5,825.

2. GPS/GIS Training for Ongoing Mapping and Data Maintenance (8 hours)
   2.1. Contractor will supply a one (1) day on-site training session (up to 8 hours) ($1,880; labor plus expenses) on the use of the FDCS (for ongoing maintenance mapping) and ArcGIS for editing/attribution and GIS processing.
   2.2 City will be provided with four (4) hours of ongoing telephone Technical Support at a cost of $340

3. Project Reporting & Data Deliverables (16 hours)
   3.1 City will deliver quarterly progress reports to the State as well as a Final Project Report by June 30, 2019.
   3.2 The Contractor will be expected to deliver the final GIS dataset to the State by June 30, 2019, including valid metadata.

City (In-kind) Contributions

The City expects to provide a considerable in-kind contribution of labor to the project effort, including grant administration from Mayor Richard Morris (MAYOR) and Public Works Superintendent Skip Ross (PW1). Field data collection support and QA/QC reviews will be supplied by the Public Works Dept. staff. Mayor Morris anticipates 6 hours on contractual coordination (City and State, City and County and City and Contractor), as well as 40 hours over

the course of the project for administration, including State quarterly progress reporting, a final project report and Contractor coordination.   The Mayor's hourly rate is $40/hr., so his labor contribution to the overall project is $1,840. Supplies/copies are also anticipated at $50 during the project period.

Skip Ross will also contribute to the project administration, assisting the Mayor with 6 hours of initial contractual coordination, and later, with coordination with the Mayor/City and County and the Contractor with 20 hours (5 hours per quarter) expended. Skip will also expend 30 hours to support his Public Works Dept. staff during the locating/marking process, 4 hours for ArcGIS Basics and Editing training, 16 hours reviewing the initially processed field data and preliminary pipe network and 16 more hours reviewing the pipe network attribution. Ongoing data maintenance (processing City resolved field remarks) will require an additional 10 hours and ongoing data maintenance/field data collection training will be 4 hours as well. Skip's hourly rate (salary and benefits) is $30 per hour, so his estimated 106 hours of labor contribution totals $3,180.

City Street Superindent Nate Nash (PW2) and Public Works Laborers, Kelly Olson and Jason Burley (PW3s), will directly locate and mark all water infrastructure prior to field data collection, each expending an estimated 130 hours of direct labor (390 hours total). The PW staff will also guide and support MaPS, Inc. during the field data collection effort, each supplying an estimated 69 hours of direct labor (207 hours total).   Nate will also support Skip during the QA/QC review/discrepancy resolution process (16 hours). These staff will be trained on the ArcGIS software (4 hours each) and on-site maintenance mapping/field data collection (4 hours each) (24 hours total). Their combined hours are 637 hours. At their respective hourly labor rates of $20 (PW2) and $17 (PW3s), the Public Works crew's estimated labor contribution will cost $11,498.

The City anticipates contracting directly with the Contractor on an ongoing basis for all ongoing Technical Support of data resulting from this project in future Public Works Dept. budgeting. The City intends to conduct ongoing maintenance of the GIS data, including conducting ongoing GPS data collection for maintenance of the utility systems and the addition of new infrastructure (e.g. new construction and/or growth and development within the community).

A detailed breakdown of the overall hours/costs and the assigned project partner for each task:

FORT BENTON - PUBLIC UTILITIES GPS/GIS MAPPING PROJECT (FY 2019)						
	MAYOR			40		
	PW1			30		
	PW2			20		
	PW3			17		
	CNSLT			85		
ITEM	**WHO**	**CNSLT**	**CITY**	**HRLY RATE**	**COST**	
1. Develop a GIS for the City's public utilities						
1.1 City/County MOU and City/Contractor LOA	MAYOR		6	40	240.00	
1.1 City/County MOU and City/Contractor LOA	PW1		6	30	180.00	
1.1 City/County MOU and City/Contractor LOA	CNSLT	4		85	340.00	
1.2 Create a public utilities GIS schema	CNSLT	4		85	340.00	
1.2 Create a public utilities GIS schema	PW1		2	30	60.00	
1.3 Develop a project plan/schedule	CNSLT	2		85	170.00	
1.3 Develop a project plan/schedule	PW1		2	30	60.00	
1.4 (1) ArcGIS Desktop License	CITY				1,500.00	
1.4 (1) AGOL Names User Subscription	CITY				500.00	
1.4 (1) Ruggedized Tablet Computer/Accessories	CITY				1,800.00	
1.4 (1) Sub-meter GPS Receiver & Accessories	CITY				2,700.00	
1.5 Set up/test the ESRI software and FDCS	CNSLT	40		85	3,400.00	
1.6 Locate, expose and mark the water utilities	PW1		30	30	900.00	
1.6 Locate, expose and mark the water utilities	PW2		130	20	2,600.00	
1.6 Locate, expose and mark the water utilities (2 men)	PW3		260	17	4,420.00	
1.7 GPS/GIS field data collection (1165 pts. x $5/pt.)	CNSLT	69		85	5,825.00	
1.7 Conduct the GPS/GIS field data collection	PW1		6	30	180.00	
1.7 Conduct the GPS/GIS field data collection	PW2		69	20	1,380.00	
1.7 Conduct the GPS/GIS field data collection (2 men)	PW3		138	17	2,346.00	
1.8 GIS processing and QA/QC	CNSLT	69		85	5,825.00	
1.8 GIS processing and QA/QC	PW1		26	30	780.00	
1.8 GIS processing and QA/QC	PW2		16	20	320.00	
		187	701		**$36,166.00**	Subtl
2. GPS/GIS Training						
2.1 On-site GPS/GIS training of City Public Works staff	CNSLT	8		85	680.00	
2.1 Expenses; travel tm, air, miles, hotel, per diem	CNSLT				1,200.00	
2.1 On-site GPS/GIS training of City PW staff	PW1		8	30	240.00	
2.1 On-site GPS/GIS training of City PW staff	PW2		8	20	160.00	
2.1 On-site GPS/GIS training of City PW staff (2 men)	PW3		16	17	272.00	
2.2 Ongoing Technical Support	CNSLT	4		85	340.00	
		12	32		**$2,892.00**	Subtl
3. Project Reporting & Data Deliverables						
3.1 Quarterly progress reports & final project report	MAYOR		40	40	1,600.00	
3.1 Quarterly progress reports & final project report	PW1		20	30	600.00	
3.1 Supplies/Copies					50.00	
3.2 Final GIS data/metadata submittal	CNSLT	16		85	1,360.00	
		16	60		**$3,610.00**	Subtl

CNSLT hrs:	215	566	:CITY Hrs	**$42,668.00**	**Total**
$18,280.00	Labor		$1,840.00	Mayor	
$1,200.00	Expns		$3,300.00	PW1	
$19,480.00			$4,460.00	PW2	
			$7,038.00	PW3	
			$6,500.00	Hard/Software	
			$50.00	Supplies/Copies	
			$23,188.00		

MLIA GRANT BUDGET SUMMARY

Category	MLIA Summary — MLIA Share	Applicant Summary — Applicant Cash	Applicant In-kind	Applicant Subtotal	Total: MLIA Share, Applicant Subtotal, Partner Subtotal
a. Personnel			$23,188	$23,188	$23,188
a. 1. Fringe Benefits					
b. Travel					
c. Equipment					
d. Supplies & Materials					
e. Contractual	$19,480				$19,480
f. Other					
Total	$19,480		$23,188	$23,188	$42,668

SECTION 7 – RENEWABLE GRANT ACCOUNTABILITY

This section is not applicable to this Application.

SECTION 8 – 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.

Richard O. Morris

Name (print or type)

Mayor

Title (print or type

[signature]

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

Feb. 12, 2018

Date

SECTION 9 – CHECKLIST – SIGNATURES REQUIRED

Applicant's Project Manager, defined Section 1, must initial in ink or mark 'n/a' if a section is not applicable.
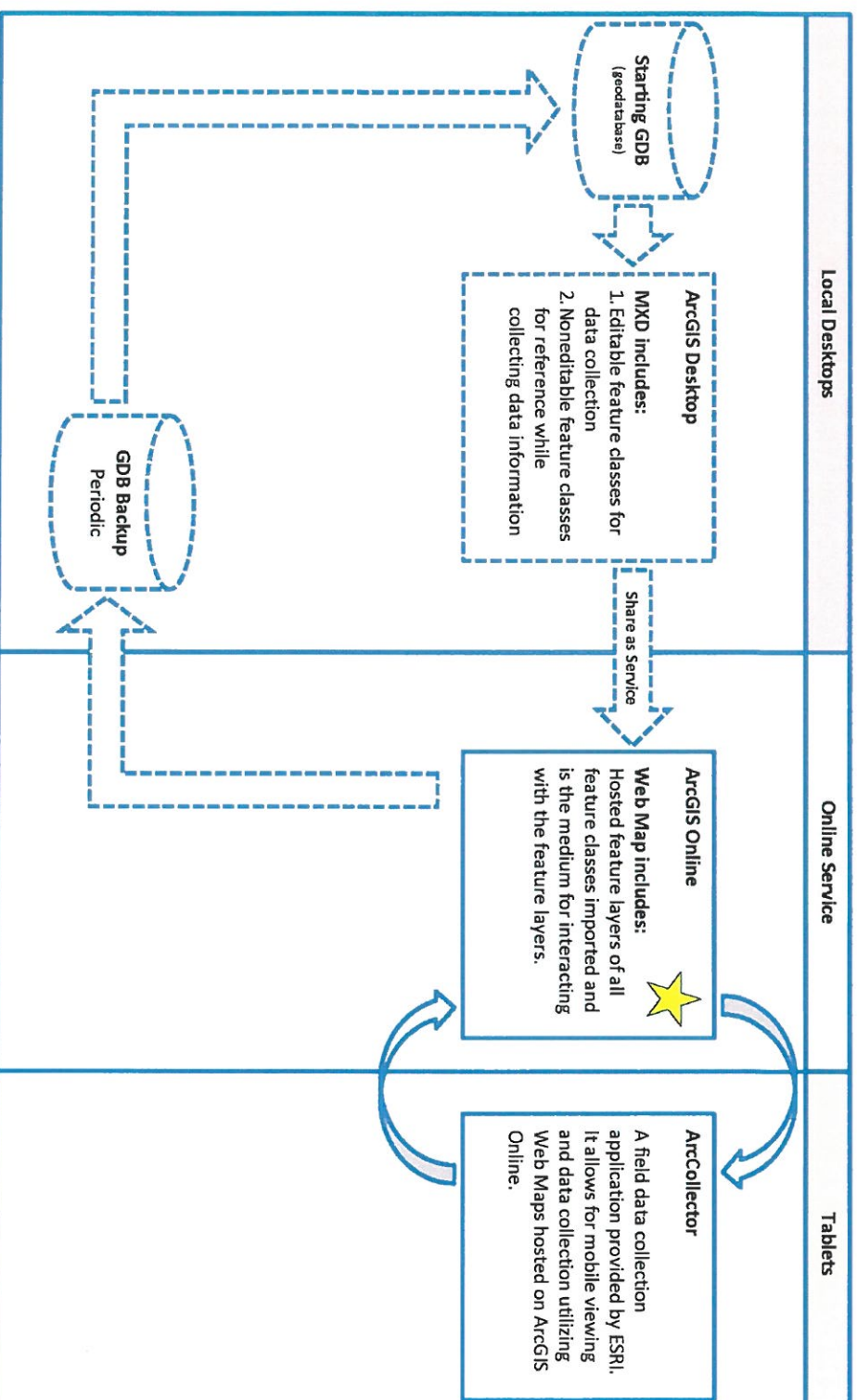
Initial or mark n/a	Completed Required Task
	Proposal Prepared by an outside party – I have read this document in its entirety. *(if applicable)*
	Section 1 – Applicant, Partner, and Proposal Information
	Primary Applicant Information
	Funding Partner *(if applicable)*
	Proposal Information
	List All Past Awarded MLIA Grants
	Section 2 – Relevance *(300 max word limit)*
	Section 3 – Public Benefit
	Section 4 – Project Management
	Section 5 – Scope of Work Narrative *(4-page limit)*
	Section 6 – Budget Justification Narrative and Table *(3-page limit)*
	Budget Justification Narrative
	Complete Budget Table
	Section 7 – Funding Partner Statements of Support *(if applicable)*
	Section 8 – Renewable Grant Accountability Narrative *(if applicable)*
	FY2018 Grantee Report *(if applicable)*
	Past MLIA Grant Project Narrative *(if applicable)*
	Section 9 – A Signed Authorizing Statement

APPENDIX A

Overview of ArcGIS Workflow & Sample GDB Specifications

Overview of Workflow

Local Desktops

Online Service

Tablets

Starting GDB
(geodatabase)

GDB Backup
Periodic

ArcGIS Desktop

MXD includes:
1. Editable feature classes for data collection
2. Noneditable feature classes for reference while collecting data information

Share as Service

ArcGIS Online

Web Map includes:
Hosted feature layers of all feature classes imported and is the medium for interacting with the feature layers.

ArcCollector

A field data collection application provided by ESRI. It allows for mobile viewing and data collection utilizing Web Maps hosted on ArcGIS Online.

Data Specifications

The original geodatabase has this structure.

- Conrad_Utilities.gdb
  - Sewer
    - LiftStations
    - SewerMains
    - SewerManHoles
    - SewerMeterPits
  - Storm
    - StormDrains
    - StormMainlets
    - StormMains
    - StormManholes
  - Water
    - CurbStops
    - GateValves
    - Hydrants
    - LateralLines
    - WaterMains
    - WaterMeterPits
  - GlobalRemarks

The resulting Feature Layer in ArcGIS Online.

Description

Feature Layer for the City of Conrad's utilities containing the sewer, water, and storm systems.

Layers

- Sewer Lift Stations
- Sewer Mains
- Sewer Man Holes
- Sewer Meter Pits
- Storm Drains
- Storm Mainlets
- Storm Mains
- Storm Man Holes
- Water Curb Stops
- Water Gate Valves
- Water Hydrants
- Water Lateral Lines
- Water Mains
- Water Meter Pits
- Global Remarks

GEODATABASE NAME	FEATURE DATASET	FEATURE CLASS	FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
CONRAD_UTILITIES.GDB	WATER	CURBSTOPS	NEW_ADD	HOUSE NUMBER	TEXT	5	-	123	456				HOUSE NUMBER OF ADDRESS OF STRUCTURE THAT CURBSTOP CONTROLS - OPEN FIELD WITH FIELD NAME TO MATCH THAT OR COUNTY $# -	1	Y	EDITABLE
			NUM_SFX	HOUSE NUMBER SUFFIX	TEXT	3	-	1/2	A				HOUSE NUMBER & SUFFIX OF ADDRESS OF STRUCTURE THAT CURBSTOP CONTROLS - OPEN FIELD WITH FIELD NAME TO MATCH THAT OR COUNTY $# -	2	Y	EDITABLE
			PRE_DIR	STREET PREDIRECTION	TEXT	3	PRE_DIR	N	SW				ROAD NAME PRE DIRECTION OF ADDRESS OF STRUCTURE THAT CURBSTOP CONTROLS - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OR RDS_MSTR (FULL COUNTY) -	3	Y	EDITABLE
			RD_NM	STREET NAME	TEXT	50	RD_NM						ROAD NAME OF ADDRESS OF STRUCTURE THAT CURBSTOP CONTROLS - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY) -	4	Y	EDITABLE
			REMARKS	REMARKS	TEXT	250	-	MIDDLE OF HEDGE					UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
			GEOUNK_ID	UNIQUE IDENTIFIER	DOUBLE	50	-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
			CREATR_USER	CREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
			CREATR_DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
			EDITR_USER	LAST EDITOR USERNAME	TEXT		-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
			EDITR_DATE	LAST EDIT DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
			LATITUDE	LATITUDE	DOUBLE		-						LATITUDE (OR Y COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
			LONGITUDE	LONGITUDE	DOUBLE		-						LONGITUDE (OR X COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE

GEODATABASE NAME	FEATURE DATASET	FEATURE CLASS
CONRAD_UTILITIES.GDB	WATER	GATE VALVES

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
INTRSCTN 1	INTERSECTION #1	TEXT	50	FULLNAME	GALLATIN ST					INTERSECTION STREET'S NAME - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY).		Y	EDITABLE
INTRSCTN 2	INTERSECTION #2	TEXT	50	FULLNAME	MARIAS AVE					INTERSECTION STREET'S NAME - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY).		Y	EDITABLE
INTRSCTN 3	INTERSECTION #3	TEXT	50	FULLNAME						INTERSECTION STREET'S NAME - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY).		Y	EDITABLE
INTRSCTN 4	INTERSECTION #4	TEXT	50	FULLNAME						INTERSECTION STREET'S NAME - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY).		Y	EDITABLE
LOCATION	STREET ON WHICH VALVE IS LOCATED	TEXT	50	FULLNAME	GALLATIN ST					STREET THAT GATE VALVE IS ACTUALLY "IN" OR "ON" - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY).		Y	EDITABLE
REMARKS	REMARKS	TEXT	250	-						UNUSUAL CONDITIONS OR DETAILS	⊢	Y	EDITABLE
GEODLINK_ID	UNIQUE IDENTIFIER	DOUBLE		-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION.		N	EDITABLE
CREATR USER	GREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDITR USER	LAST EDITOR USERNAME	TEXT		-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDITR DATE	LAST EDIT DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
LATITUDE	LATITUDE	DOUBLE		-						LATITUDE (OR Y COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION.		N	EDITABLE
LONGITUDE	LONGITUDE	DOUBLE		-						LONGITUDE (OR X COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION.		N	EDITABLE

CITY OF CONRAD - UTILITIES DATA - FIELDS/FORMATS

	GEODATABASE NAME	CONRAD_UTILITIES.GDB
	FEATURE DATASET	WATER
	FEATURE CLASS	HYDRANTS

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLES	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
CAD ID	CAD ID	TEXT	50	-						ID PER AS BUILT/ENGINEERING	HYDRANT	Y	EDITABLE
MANUF CTR	MANUF CTR	TEXT	50	MANUF CTR	MUELLER	KENNEDY	PACIFIC STATES WATEROUS	OTHER		MANUFACTURER OF HYDRANT		Y	EDITABLE
REMARKS	REMARKS	TEXT	250	-						UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
GEOLINK ID	UNIQUE IDENTIFIER	DOUBLE		-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
CREATR USER	CREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDITR USER	LAST EDITOR USERNAME	TEXT		-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDITR DATE	LAST EDIT DATE	DATE	50	-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
LATITUDE	LATITUDE	DOUBLE		-						LATITUDE (OR Y COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
LONGITUDE	LONGITUDE	DOUBLE		-						LONGITUDE (OR X COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE

CITY OF CONRAD - UTILITIES DATA - FIELDS/FORMATS

GEODATABASE NAME	CONRAD_UTILITIES.GDB
FEATURE DATASET	WATER
FEATURE CLASS	LATERALLINES

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARCISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
INSTALLDATE	INSTALL DATE	DATE		-						DATE SERVICE WAS ESTABLISHED	1	Y	EDITABLE
DIAMETER	DIAMETER	DOUBLE	50	-						DIAMETER OF INSIDE OF PIPE IN INCHES	2	Y	EDITABLE
OWNEDBY	OWNED BY	TEXT	50	-						OWNER OF PIPE		Y	EDITABLE
MAINTBY	MAINTAINED BY	TEXT	20	-						MAINTAINER OF PIPE		Y	EDITABLE
MATERIAL	MATERIAL	TEXT		W_MATERIAL	CAST IRON	DUCTILE IRON	PVC	STEEL	OTHER	MATERIAL OF PIPE		Y	EDITABLE
CAD LENGTH	CAD LENGTH	SHORT INTEGER		-						LENGTH OF LINE SEGMENT PER AS BUILT/ENGINEERING		Y	EDITABLE
REMARKS	REMARKS	TEXT	250	-						UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
GEOLINK_ID	UNIQUE IDENTIFIER	DOUBLE	50	-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
CREATR USER	GREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDTR USER	LAST EDITOR USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDTR DATE	LAST EDIT DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
SHAPE_LENGTH		DOUBLE		-						LENGTH OF LINE SEGMENT - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE

GEODATABASE NAME	CONRAD_UTILITIES.GDB
FEATURE DATASET	WATER
FEATURE CLASS	WATERMAINS

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
INSTALLDATE	INSTALL DATE	DATE		-						DATE SERVICE WAS ESTABLISHED		Y	EDITABLE
DIAMETER	DIAMETER	DOUBLE	50	-						DIAMETER OF INSIDE OF PIPE IN INCHES	1	Y	EDITABLE
OWNEDBY	OWNED BY	TEXT	50	-						OWNER OF PIPE		Y	EDITABLE
MAINTBY	MAINTAINED BY	TEXT	20	-						MAINTAINER OF PIPE		Y	EDITABLE
MATERIAL	MATERIAL	TEXT		W_MATERIAL	CAST IRON	DUCTILE IRON	PVC	STEEL	OTHER	MATERIAL OF PIPE		Y	EDITABLE
CAD_LENGTH	CAD LENGTH	SHORT INTEGER	250	-						LENGTH OF LINE SEGMENT PER AS BUILT/ENGINEERING	2	Y	EDITABLE
REMARKS	REMARKS	TEXT	250	-						UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
GEOJUNK_ID	UNIQUE IDENTIFIER	DOUBLE		-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION.		N	EDITABLE
CREATR USER	GREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDTR USER	LAST EDITOR USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDTR DATE	LAST EDIT DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
SHAPE_LENGTH		DOUBLE								LENGTH OF LINE SEGMENT - TO BE POPULATED AFTER FIELD COLLECTION.		N	EDITABLE

CITY OF CONRAD - UTILITIES DATA - FIELDS/FORMATS

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	VIEWABLE IN ARCCOLLECTOR OR ARGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
CAD_ID	CAD_ID	TEXT	50	-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION.	Y	EDITABLE
REMARKS	REMARKS	TEXT	250	-	E OF PARK SIGN-INSIDE VAULT					UNUSUAL CONDITIONS OR DETAILS (OPTIONAL)	Y	EDITABLE
GEOLINK_ID	UNIQUE IDENTIFIER	DOUBLE		-							N	EDITABLE
CREATR_USER	CREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED	N	NOT
CREATR_DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED	N	NOT
EDTR_USER	LAST EDITOR USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED	N	NOT
EDTR_DATE	LAST EDIT DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED	N	NOT
LATITUDE	LATITUDE	DOUBLE		-						LATITUDE (OR Y COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION.	N	EDITABLE
LONGITUDE	LONGITUDE	DOUBLE		-						LONGITUDE (OR X COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION.	N	EDITABLE

Field	Value
GEODATABASE NAME	CONRAD_UTILITIES.GDB
FEATURE DATASET	WATER
FEATURE CLASS	WATERMETERPITS
ARCGIS ONLINE POPUP TITLE	WATER METER PIT

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CITY OF CONRAD - UTILITIES DATA - FIELDS/FORMATS

GEODATABASE NAME	CONRAD_UTILITIES.GDB
FEATURE DATASET	SEWER
FEATURE CLASS	LIFTSTATIONS

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR OR ARGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
NAME	LIFTSTATION NAME	TEXT	100	-	WEST SIDE UNIT					NAME OR REFERENCE INFORMATION	SEWER LIFT STATION	Y	EDITABLE
REMARKS	REMARKS	TEXT	250	-	INSTALLED 8/15/2015					UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
GEOLINK_ID	UNIQUE IDENTIFIER	DOUBLE		-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION.		N	EDITABLE
CREATR_USER	CREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR_DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDITR_USER	LAST EDITOR USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDITR_DATE	LAST EDIT DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
LATITUDE	LATITUDE	DOUBLE		-						LATITUDE (OR Y COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION.		N	EDITABLE
LONGITUDE	LONGITUDE	DOUBLE		-						LONGITUDE (OR X COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION.		N	EDITABLE

GEODATABASE NAME	CONRAD_UTILITIES.GDB
FEATURE DATASET	SEWER
FEATURE CLASS	SEWERMAINS

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARCGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
INSTALLDATE	INSTALL DATE	DATE		-						DATE SERVICE WAS ESTABLISHED		Y	EDITABLE
DIAMETER	DIAMETER	DOUBLE		-						DIAMETER OF INSIDE OF PIPE IN INCHES	1	Y	EDITABLE
OWNEDBY	OWNED BY	TEXT	50	-						OWNER OF PIPE		Y	EDITABLE
MAINTBY	MAINTAINED BY	TEXT	50	-						MAINTAINER OF PIPE		Y	EDITABLE
MATERIAL	MATERIAL	TEXT	20	S_MATERIAL	CLAY	CONCRETE	CORREGATED PLASTIC	DUCTILE IRON	PVC	MATERIAL OF PIPE	2	Y	EDITABLE
CAD_LENGTH	CAD LENGTH	SHORT INTEGER		-						LENGTH OF LINE SEGMENT PER AS BUILT/ENGINEERING		Y	EDITABLE
REMARKS	REMARKS	TEXT	250	-						UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
GEOLINK_ID	UNIQUE IDENTIFIER	DOUBLE								UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION-		N	EDITABLE
CREATR_USER	CREATER USERNAME	TEXT	50							CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR_DATE	CREATED DATE	DATE								CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDITR_USER	LAST EDITOR USERNAME	TEXT	50							CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDITR_DATE	LAST EDIT DATE	DATE								CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
SHAPE_LENGTH		DOUBLE								LENGTH OF LINE SEGMENT - TO BE POPULATED AFTER FIELD COLLECTION-		N	EDITABLE

GEODATABASE NAME	CONRAD_UTILITIES.GDB
FEATURE DATASET	SEWER
FEATURE CLASS	SEWERMANHOLES

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
INTRSCTN 1	INTERSECTION #1	TEXT	50	FULLNAME	GALLATIN ST					INTERSECTION STREET'S NAME - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY).	1	Y	EDITABLE
INTRSCTN 2	INTERSECTION #2	TEXT	50	FULLNAME	MARIAS AVE					INTERSECTION STREET'S NAME - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY).		Y	EDITABLE
INTRSCTN 3	INTERSECTION #3	TEXT	50	FULLNAME						INTERSECTION STREET'S NAME - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY).		Y	EDITABLE
INTRSCTN 4	INTERSECTION #4	TEXT	50	FULLNAME						INTERSECTION STREET'S NAME - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY).		Y	EDITABLE
LOCATION	WHICH MANHOLE IS LOCATED	TEXT	50	FULLNAME	GALLATIN ST					INDICATES STREET THAT MANHOLE IS ACTUALLY "IN" OR "ON" - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY).		Y	EDITABLE
DIRECTION	DIRECTION OF FLOW	TEXT	50	DIRECTION	N	SW				INDICATES DIRECTION OF FLOW - DOMAIN POPULATED BEFORE WITH CARDINAL AND SEMICARDINAL DIRECTION.		Y	EDITABLE
DEPTH_FT	DEPTH FEET	SHORT INTEGER			6					DEPTH IN FEET FROM COVER TO PIPE BOTTOM		Y	EDITABLE
DEPTH_IN	DEPTH INCHES	SHORT INTEGER			9					DEPTH IN ADDITIONAL INCHES (IN EXCESS OF DEPTH_FT) FROM COVER TO PIPE BOTTOM		Y	EDITABLE
SEWER_ID	SEWER ID	TEXT	250							ID ON MANHOLE COVER		Y	EDITABLE
REMARKS	REMARKS	TEXT	250							UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
GEOLINK_ID	UNIQUE IDENTIFIER	DOUBLE								UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION.		N	EDITABLE
ANGLE	ANGLE	SHORT INTEGER								ANGLE ALLOWS ROTATION OF SYMBOL TO SHOW FLOW DIRECTION - TO BE POPULATED AFTER FIELD COLLECTION BASED ON DIRECTION INPUT.		N	EDITABLE
CREATR USER	CREATER USERNAME	TEXT								CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR DATE	CREATED DATE	DATE								CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDITR USER	LAST EDITOR USERNAME	TEXT	50							CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDITR DATE	LAST EDIT DATE	DATE	50							CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
LATITUDE	LATITUDE	DOUBLE								LATITUDE (OR Y COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION.		N	EDITABLE
LONGITUDE	LONGITUDE	DOUBLE								LONGITUDE (OR X COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION.		N	EDITABLE

GEODATABASE NAME	CONRAD_UTILITIES.GDB
FEATURE DATASET	SEWER
FEATURE CLASS	SEWERMETERPITS

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
CAD ID	CAD ID	TEXT	50	-						(OPTIONAL)		Y	EDITABLE
REMARKS	REMARKS	TEXT	250	-	E OF PARK SIGN: INSIDE VAULT					UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
GEOUNK ID	UNIQUE IDENTIFIER	DOUBLE		-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
CREATR USER	CREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDTR USER	LAST EDITOR USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDTR DATE	LAST EDIT DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED	SEWER METER PIT	N	NOT
LATITUDE	LATITUDE	DOUBLE		-						LATITUDE (OR Y COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
LONGITUDE	LONGITUDE	DOUBLE		-						LONGITUDE (OR X COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE

CITY OF CONRAD - UTILITIES DATA - FIELDS/FORMATS

GEODATABASE NAME	CONRAD_UTILITIES.GDB
FEATURE DATASET	STORM
FEATURE CLASS	STORMDRAINS

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR OR ARGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
INTRSCTN 1	INTERSECTION #1	TEXT	50	FULLNAME	GALLATIN ST					INTERSECTION STREET'S NAME - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RD1_MSTR (FULL COUNTY) -		Y	EDITABLE
INTRSCTN 2	INTERSECTION #2	TEXT	50	FULLNAME	MARIAS AVE					INTERSECTION STREET'S NAME - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RD2_MSTR (FULL COUNTY) -		Y	EDITABLE
INTRSCTN 3	INTERSECTION #3	TEXT	50	FULLNAME						INTERSECTION STREET'S NAME - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RD3_MSTR (FULL COUNTY) -		Y	EDITABLE
INTRSCTN 4	INTERSECTION #4	TEXT	50	FULLNAME						STREET THAT MANHOLE IS ACTUALLY "IN" OR "ON" - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RD4_MSTR (FULL COUNTY) -		Y	EDITABLE
LOCATION	WHICH STORMDRAIN IS LOCATED	TEXT	50	FULLNAME	GALLATIN ST					TYPE OF DRAIN - DOMAIN POPULATED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RD5_MSTR (FULL COUNTY) -	1	Y	EDITABLE
DRAINTYPE	STORM DRAIN TYPE	TEXT	10	-	INSET ROUND GRATE	INSET SQR GRATE	OPEN INLET	BARRED INLET		TYPE OF DRAIN -		Y	EDITABLE
REMARKS	REMARKS	TEXT	250	-	E OF PARK SIGN; INSIDE VAULT					UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
GEOLINK_ID	UNIQUE IDENTIFIER	DOUBLE		-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
CREATR USER	CREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDTR USER	LAST EDITOR USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDTR DATE	LAST EDIT DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
LATITUDE	LATITUDE	DOUBLE		-						LATITUDE (OR Y COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
LONGITUDE	LONGITUDE	DOUBLE		-						LONGITUDE (OR X COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE

CITY OF CONRAD - UTILITIES DATA - FIELDS/FORMATS

MaPS, Inc.

	CONRAD_UTILITIES.GDB			GEODATABASE NAME
	STORM			FEATURE DATASET
	STORMMAINLETS			FEATURE CLASS

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARCGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
STORMMAINLETTYPE	STORM MAINLET TYPE	TEXT	10	STLETTYPE	OUTLET	INLET				TYPE ATTRBT ALLOWS COLOR-CODING OF SYMBOLS	STORM MAINLET	Y	EDITABLE
REMARKS	REMARKS	TEXT	250	-	E OF PARK SIGN; INSIDE VAULT					UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
GISOUNK_ID	UNIQUE IDENTIFIER	DOUBLE		-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
CREATR_USER	CREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR_DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDITR_USER	LAST EDITOR USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDITR_DATE	LAST EDIT DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
LATITUDE	LATITUDE	DOUBLE		-						LATITUDE (OR Y COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
LONGITUDE	LONGITUDE	DOUBLE		-						LONGITUDE (OR X COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE

GEODATABASE NAME	CONRAD_UTILITIES.GDB
FEATURE DATASET	STORM
FEATURE CLASS	STORMMAINS

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
INSTALDATE	INSTALL DATE	DATE		-						DATE SERVICE WAS ESTABLISHED		Y	EDITABLE
DIAMETER	DIAMETER	DOUBLE	50	-						DIAMETER OF INSIDE OF PIPE IN INCHES	1	Y	EDITABLE
OWNEDBY	OWNED BY	TEXT	50	-						OWNER OF PIPE		Y	EDITABLE
MAINTBY	MAINTAINED BY TEXT	TEXT	20	-						MAINTAINER OF PIPE		Y	EDITABLE
MATERIAL	MATERIAL	TEXT	20	S_MATERIAL	CLAY	CONCRETE	CORREGATED PLASTIC	DUCTILE IRON	PVC	MATERIAL OF PIPE		Y	EDITABLE
CAD LENGTH	CAD LENGTH	SHORT INTEGER		-						LENGTH OF LINE SEGMENT PER AS BUILT/ENGINEERING	2	Y	EDITABLE
REMARKS	REMARKS	TEXT	250	-						UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
GEOLINK_ID	UNIQUE IDENTIFIER	DOUBLE	50	-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE
CREATR USER	CREATER USERNAME	TEXT		-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR DATE	CREATED DATE	DATE								CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDTR USER	LAST EDITOR USERNAME	TEXT	50							CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDTR DATE	LAST EDIT DATE	DATE								CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
SHAPE_LENGTH		DOUBLE								LENGTH OF LINE SEGMENT - TO BE POPULATED AFTER FIELD COLLECTION -		N	EDITABLE

GEODATABASE NAME	CONRAD_UTILITIES.GDB							
FEATURE DATASET	STORM							
FEATURE CLASS	STORMMANHOLES							

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
INTRSCTN_1	INTERSECTION #1	TEXT	50	FULLNAME	GALLATIN ST					INTERSECTION STREET'S NAME • DOMAIN POPULAED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY) •		Y	EDITABLE
INTRSCTN_2	INTERSECTION #2	TEXT	50	FULLNAME	MARIAS AVE					INTERSECTION STREET'S NAME • DOMAIN POPULAED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY) •		Y	EDITABLE
INTRSCTN_3	INTERSECTION #3	TEXT	50	FULLNAME						INTERSECTION STREET'S NAME • DOMAIN POPULAED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY) •		Y	EDITABLE
INTRSCTN_4	INTERSECTION #4	TEXT	50	FULLNAME						INTERSECTION STREET'S NAME • DOMAIN POPULAED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY) •		Y	EDITABLE
LOCATION	WHICH MANHOLE IS LOCATED	TEXT	50	FULLNAME	GALLATIN ST					STREET THAT MANHOLE IS ACTUALLY "IN" OR "ON" • DOMAIN POPULAED BEFORE WITH DATA & FIELD NAME TO MATCH THAT OF RDS_MSTR (FULL COUNTY) •		Y	EDITABLE
DIRECTION	DIRECTION OF FLOW	TEXT	50	DIRECTION	N	SW				INDICATES DIRECTION OF FLOW • DOMAIN POPULAED BEFORE WITH CARDINAL AND SEMICARDINAL DIRECTION •		Y	EDITABLE
DEPTH_FT	DEPTH FEET	SHORT INTEGER			6					DEPTH IN FEET FROM COVER TO PIPE BOTTOM		Y	EDITABLE
DEPTH_IN	DEPTH INCHES	SHORT INTEGER			9					DEPTH IN ADDITIONAL INCHES (IN EXCESS OF DEPTH_FT) FROM COVER TO PIPE BOTTOM		Y	EDITABLE
STORM_ID	STORM ID	TEXT	250							ID ON MANHOLE COVER	1	Y	EDITABLE
REMARKS	REMARKS	TEXT	250							UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
GEOUNK_ID	UNIQUE IDENTIFIER	DOUBLE		-						UNIQUE IDENTIFICATION NUMBER • TO BE POPULATED AFTER FIELD COLLECTION •		N	EDITABLE
ANGLE	ANGLE	SHORT INTEGER								ANGLE ALLOWS ROTATION OF SYMBOL TO SHOW FLOW DIRECTION • TO BE POPULATED AFTER FIELD COLLECTION BASED ON DIRECTION INPUT •		N	EDITABLE
CREATR_USER	CREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	EDITABLE
CREATR_DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDITR_USER	LAST EDITOR USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDITR_DATE	LAST EDIT DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
LATITUDE	LATITUDE	DOUBLE		-						LATITUDE (OR Y COORDINATE) • TO BE POPULATED AFTER FIELD COLLECTION •		N	EDITABLE
LONGITUDE	LONGITUDE	DOUBLE		-						LONGITUDE (OR X COORDINATE) • TO BE POPULATED AFTER FIELD COLLECTION •		N	EDITABLE

CITY OF CONRAD - UTILITIES DATA- FIELDS/FORMATS

MaPS, Inc.

GEODATABASE NAME	CONRAD_UTILITIES.GDB
FEATURE DATASET	.
FEATURE CLASS	GLOBALREMARKS

FIELD NAME	FIELD ALIAS	DATA TYPE	LENGTH	DOMAIN USED	EXAMPLE1	EXAMPLE2	EXAMPLE3	EXAMPLE4	EXAMPLE5	DESCRIPTION	ARCGIS ONLINE POPUP TITLE	VIEWABLE IN ARCCOLLECTOR ARCGISONLINE POPUP	ARCGIS ONLINE LAYER TYPE
REMARKS	REMARKS	TEXT	250	.						UNUSUAL CONDITIONS OR DETAILS		Y	EDITABLE
REM TYPE	REMARK TYPE	TEXT	10	REM TYPE	WATER	SEWER	STORM	OTHER		SELECT TYPE FROM LIST		Y	EDITABLE
NTV	NEED TO VERIFY	TEXT	5	NTV	Y	N				ALLOWS COLOR-CODING OF POINTS THAT NEED ATTENTION OR REMEDIATION	1	Y	EDITABLE
GEOLINK ID	UNIQUE IDENTIFIER	DOUBLE		-						UNIQUE IDENTIFICATION NUMBER - TO BE POPULATED AFTER FIELD COLLECTION-		N	EDITABLE
CREATR USER	CREATER USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS CREATED		N	NOT
CREATR DATE	CREATED DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS CREATED		N	NOT
EDITR USER	LAST EDITOR USERNAME	TEXT	50	-						CAPTURES USERNAME WHEN FEATURE IS LAST EDITED		N	NOT
EDITR DATE	LAST EDIT DATE	DATE		-						CAPTURES DATE/TIME WHEN FEATURE IS LAST EDITED		N	NOT
LATITUDE	LATITUDE	DOUBLE		-						LATITUDE (OR Y COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION-		N	EDITABLE
LONGITUDE	LONGITUDE	DOUBLE		-						LONGITUDE (OR X COORDINATE) - TO BE POPULATED AFTER FIELD COLLECTION-		N	EDITABLE

APPENDIX B

Sample Tablet & GPS Receiver Specifications

- XPLORE XSLATE R12's marketing write-up
- TRIMBLE R1 GNSS Receiver product specs
- Trimble R1 Pole Pouch image
- Range Pole image

XPLORE
THE RUGGED TABLET AUTHORITY.

XSLATE
R12
RUGGED REDEFINED

intel CORE i7 vPro 7th Gen

intel SSD INSIDE
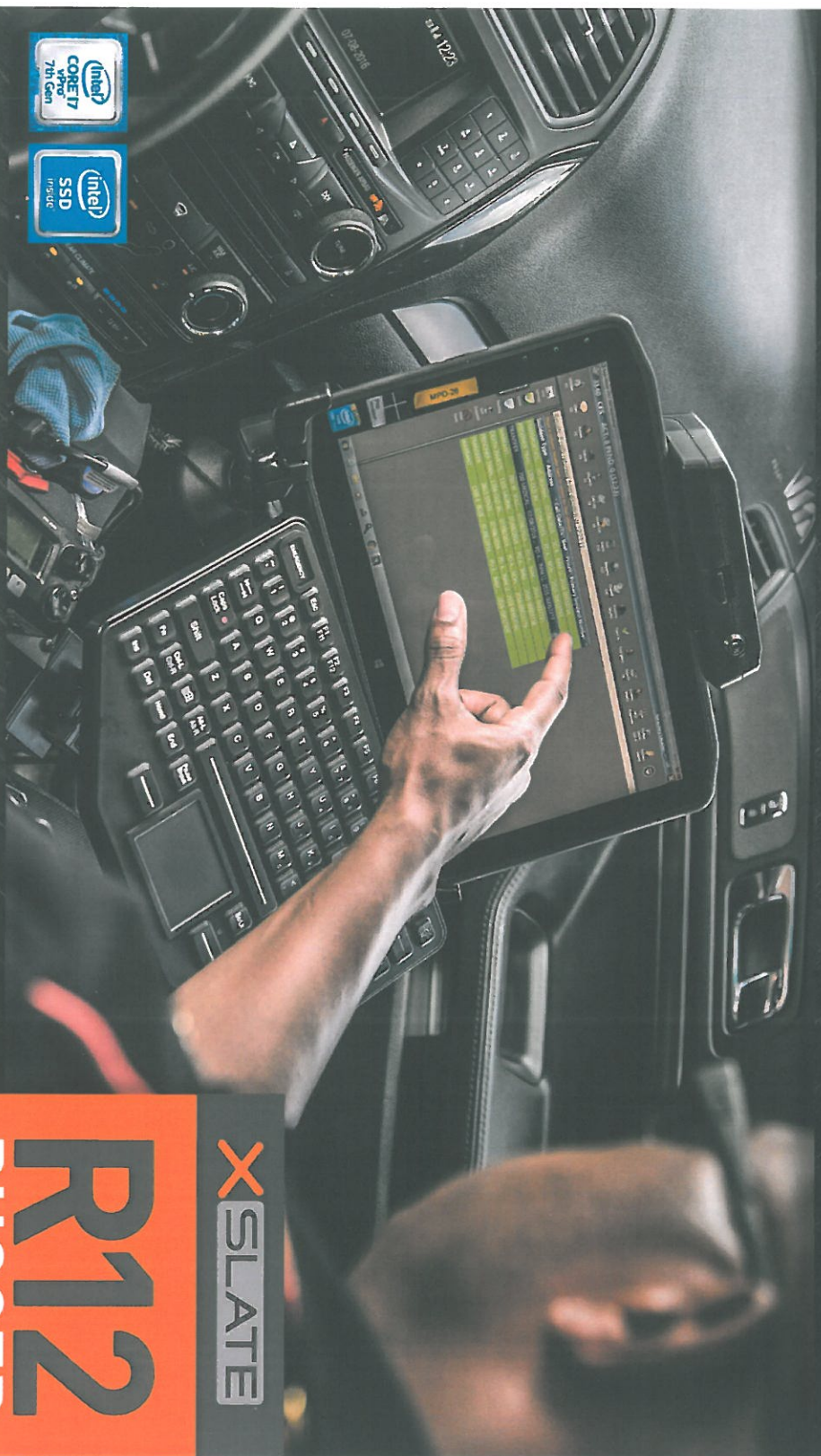
Pass-Through Antenna
for WWAN, WLAN, GPS

800 Nit View
Anywhere™ Display

RJ-45 and Serial
Ports via Dongle

Optional Smart Card/
CAC Reader

Band 14
Ready

XSLATE
R12
RUGGED REDEFINED

FROM THE FIELD… TO YOUR VEHICLE… TO YOUR OFFICE

RETHINK WHAT A RUGGED TABLET SHOULD BE.
SEE ALL (THE PCs) THAT IT CAN BE.

The Xplore® XSLATE R12 is much more than a next-generation detachable tablet – it's the fastest rugged tablet on the market today. Gain powerful 2 in 1 capabilities with a magnetically-attached Companion Keyboard that's always on standby, but never in the way. It's designed to be the only computer you need. It is a highly adaptable PC platform that accommodates the working styles and aesthetic preferences of your mobile workers in mixed environments. So retire old desktops and oversized notebooks because this rugged tablet defines a new era of transitional computing.

ALWAYS THE RIGHT FORM.
MORE THAN ENOUGH FLEXIBILITY.

With the XSLATE R12 (and its long, hot-swappable battery life), you'll always have the mission-critical computing functions and real-time insights required to "wow" your customers and boss. You'll also have the clarity of the industry's brightest 12.5" display, and easy-to-use touch, pen, voice, and camera inputs. Want to finish more data-intensive tasks? Just release the Bluetooth™-connected keyboard from its "stow and go" mode and watch this rugged tablet transform into the ideal desktop or laptop.

R12

DON'T PASS UP A RUGGEDLY APPEALING PC
WITH A PASS-THROUGH ANTENNA OPTION

SLEEK, AWARD-WINNING RUGGED DESIGN

2.95 lbs (1.34 kg). MIL-STD-810G. IP54, C1D2

BEST-IN-CLASS OUTDOOR VIEWABILITY

12.5" 800 Nit View Anywhere™ display, protected by Corning® Gorilla Glass®

BACKWARDS COMPATIBLE AND FUTURE-READY

Windows® 10/8.1/7 Pro OS options, up to the Intel® Core™ i7 vPro Processor, Intel PCIe SSDs up to 1TB, built-in 4G LTE, Wi-Fi®, Band 14, pass-through antenna capabilities for WWAN, WLAN and GPS

HIGHLY SECURE

Fingerprint scanner, removable SSD, optional Smart Card/CAC reader

visit *xploretech.com* for detailed product specs

Windows

MIL-STD 810G | IP54 | Gorilla Glass® | C1D2

WITH ALL OF THESE OPTIONS, YOU CAN'T GO WRONG.

The XSLATE R12 offers more high-performance feature options than any tablet PC in its class. You can pair powerful 7th generation Intel® processors with your preferred Windows® OS. Attach an RJ45 + RS232 True Serial port dongle. Or add the SlateMate® module to automatically gain a barcode scanner and HF RFID reader for easy point of service data acquisition. If you're a multi-tasker who needs consistency — and options — you'll get everything you need in one rugged tablet.

RUGGED REDEFINED. MOBILITY WITHOUT COMPROMISE.

This rugged tablet is built to keep your TCO low and ROI high, especially as mobility demands grow. It's ready for the field and front office, patrol car and factory, present and future. Expandable SSD, storage, and memory components keep pace with rising data demands. This level of connectivity ensures you never lose touch with workers, legacy equipment, and evolving business systems. You'll have complete situational awareness in real-time and customer service advantages at all times.

ACCESSORIES TO MEET EVERY NEED

SECURE MOBILE DOCK
- Ideal for desktop, vehicle, or wall mount
- Optional battery charger
- Drives 2 external HD-resolution monitors
- Supports tablet docking with Companion Keyboard attached

DOCKING STATION
- Delivers rich, secure desktop experience
- Grab and Go design
- Integrated battery charger
- Drives 2 external HD-resolution monitors

COMPANION KEYBOARD
- Bluetooth™ connected, magnetically attached to tablet along with kickstand
- Folds to stow/recharge on the back
- Stays attached to tablet when connected to Secure Mobile Dock
- USB charging-capable

OPTIONAL SLATEMATE DATA ACQUISITION MODULE
- Barcode Scanner and High Frequency RFID
- Expands tablet capabilities, maintains ruggedness
- Bright illumination light provides clear 1D/2D barcode targeting

WORK ANYWHERE KIT
- Convenient shoulder strap and carry handle
- Extra battery compartment for companion keyboard

R12

UNMATCHED COMPATIBILITY
WITH YOUR SYSTEMS, SECURITY, AND WORKERS

IT'S ALL IN A DAY'S WORK

Everyone needs a top quality multi-purpose tool for their job. Yours just happens to be the XSLATE R12. See how this transformational rugged tablet PC will go with the flow – and manage a task list as diverse as yours.

Quality Assurance	Inspections	Inventory Management
Safety Audits and Compliance Reporting	Asset Monitoring and Control	Maintenance and Repair Scheduling and Completion
Claims Processing	Engineering/Construction	Project Management
Incident Reporting	Dispatch and Routing (GPS)	Mapping/GIS Asset Location
Investigations	Situational Awareness	Evidence Documentation
Ticketing & eCitations	Electronic Patient Care Reporting (ePCR)/Electronic Health Records (EHR)	Emergency Response Planning and Management

APPEAL TO THE (WORKFORCE) MASSES – AND APPEASE THE IT TEAM

The XSLATE R12 is the device today's generation demands. It incentivizes skilled workers to stay on the team for years to come by delivering the personal flexibility they expect and the intelligence they need at the point of service. It also syncs with existing back office systems and software and meets government-mandated multi-authentication security specs appeasing IT demands. Now it's easier to manage a single, centralized PC solution than a BYOD strategy when workers are on the move.

XPLORE
THE RUGGED TABLET AUTHORITY

TRIMBLE R1
GNSS RECEIVER

MAKE ACCURACY PERSONAL

The Trimble® R1 is a rugged, compact, lightweight GNSS receiver that provides professional-grade positioning information to any connected mobile device using Bluetooth® connectivity. Purpose-built for mapping and GIS professionals in a variety of organizations, including environmental agencies, government departments, and utility companies, the standalone Trimble R1 receiver enables you to collect higher-accuracy location data with the device you already use—whether it is a modern smart device, such as a mobile phone or tablet, or traditional integrated data collection handheld or tablet.

IMPROVED GNSS POSITIONING—
ON ANY DEVICE

For users challenged with collecting high-accuracy location data using their existing consumer-grade devices, the Trimble R1 receiver is the solution. No matter what smart device you choose—from iOS to Android—for collecting GIS data, inspecting, or managing assets, the Trimble R1 lets you achieve a greater level of reliable spatial accuracy than your current smart phone or tablet is able to provide on its own.

Because the Trimble R1 is compatible with a variety of devices, your current technology investments are maximized, all while ensuring you collect reliable higher accuracy data. In addition, the investment made in your Trimble R1 GNSS receiver allows you to upgrade to the latest smart device or share the R1 between multiple devices whenever needed, saving you money and keeping you productive and efficient.

PROFESSIONAL DATA COLLECTION IN
MORE PLACES

Capable of supporting multiple satellite constellations, including GPS, GLONASS, Galileo and BeiDou, the Trimble R1 provides a truly global solution. Delivering GNSS positions in real-time without the need for postprocessing, correction sources such as SBAS, VRS, or RTX networks can be applied to suit your location and desired accuracy—giving you confidence in achieving reliable GNSS information anywhere in the world.

Obtain submeter accuracy by using the Trimble R1 with the optional Trimble ViewPoint™ RTX™ service. Trimble ViewPoint RTX service* offered with the Trimble R1 provides internet delivered submeter accuracy wherever cellular communications are available or over satellite L-band, even in remote locations.

SUPPORT YOUR DAILY GIS WORKFLOWS

The Trimble R1 integrates with the flexible and robust workflows of Trimble Mapping & GIS software—including Trimble TerraFlex™, Trimble TerraSync™, and Trimble Positions™ software—or third-party applications. No matter what mobile device you use, Trimble's professional data collection software means you can be certain your GIS is populated with quality data you can trust.

BUILT TO WORK THE WAY YOU DO

Weighing just 187 g and measuring at 11.2 cm x 6.8 cm x 2.7 cm, the Trimble R1 can go wherever you go. Easily carry around the Trimble R1 as you perform all of your data collection and asset management tasks. The receiver can be pole-mounted, carried in a vest pocket, or attached to a belt using the optional belt pouch—giving you the flexibility to choose how you use it while keeping you streamlined and cable-free, thanks to wireless Bluetooth connectivity. Plus the all-day battery life means it will keep going as long as you do. Built to last with certified MIL-STD-810 ruggedness and IP65 rating, the Trimble R1 receiver won't quit when the going gets tough.

Flexible and practical, accurate and rugged—the innovative Trimble R1 GNSS receiver delivers professional-level positions to everyone.

TRIMBLE R1
GNSS RECEIVER

GNSS

Sensor type	L1/G1 GNSS receiver and antenna
Systems	GPS, GLONASS, Galileo, Beidou, QZSS
Channels	44-channel, parallel tracking
Correction sources	SBAS, ViewPoint RTX, QZSS, VRS
SBAS	4-channel, parallel tracking
	WAAS, EGNOS, MSAS, GAGAN, SBAS ranging
Receiver protocols	NMEA 0183 v4.00, Binary
Update rate	1 Hz
Time to first fix	45s typically
Reacquisition	< 2s
Real time correction protocols	CMR, CMR+, sCMRx
	RTCM 2.1, 2.2, 2.3, 3.0, 3.1
SBAS accuracy[1]	< 100 cm
ViewPoint RTX[1]	50 cm HRMS
Code DGNSS accuracy (real-time)[1]	75 cm + 1 ppm HRMS
Maximum speed	1,850 kph / 1,150 mph / 999 knots
Maximum altitude	9,000 m (29,520 ft)

INTERFACES

Port	Bluetooth 2.1 + EDR,
	USB 2.0 (charge/firmware update)
Bluetooth transmission	Class 2 (10 m) iAP2 and 2.1 EDR
Bluetooth frequency	2.400 - 2.485 GHz
Raw measurement data	Trimble GSOF, Binary
Communication status LED	Bluetooth status, GNSS, corrected GNSS
Power status LED	Charging, charging (full), 3 stage battery status
	(> 50%, 15 – 50%, < 15%)

BATTERY AND POWER

Battery type	Integrated Lithium-Ion
Battery capacity	3.7v 15Wh
Battery life	10+ hours
Charging time	5 hours (typical, with supplied charger)
External antenna voltage output	3 VDC
External antenna input impedance	50 Ohms

ENVIRONMENTAL

Water/Dust Ingress	IP65
Temperature (MIL-STD-810G)	
Operation	−20 °C to +60 °C (−4 °F to +140 °F)
Storage	−30 °C to +70 °C (−22 °F to +158 °F)
Drop shock (non-operating)	MIL-STD-810G Method 516.5 Procedure IV
	1.2 m (4 ft) to plywood over concrete
Vibration	MIL-STD-810G Method 514.5 Procedure I Category 24
Relative humidity	MIL-STD-810G Method 507.6
	95% non-condensing
Altitude rating	MIL-STD-810G Method 500.5
Maximum storage altitude	12,192 m (40,000 ft)
Maximum operational altitude	9,000 m (29,520 ft)

MECHANICAL

Enclosure dimensions	11.2 x 6.8 x 2.7 cm (4.0 x 2.6 x 0.8 in.)
Weight	187 g (0.4 lb)
Power connector	Micro-B USB female
External antenna connector	SMB female

INTERNAL ANTENNA

Frequency range	GPS L1 and GLONASS L1

SUPPORTED PLATFORMS

iOS 7, iOS 8, Android (4.1 or greater), Windows (7 or greater), WEHH (6.5x)

COMPLIANCE

FCC Part 15 (Class device), CE Mark, RoHS

IN THE BOX

- Trimble R1 GNSS receiver
- AC Power adaptor/charger
- USB data cable
- Belt pouch/clip
- Documentation

SOFTWARE COMPATIBILITY

Please refer to the Product Compatibility list
(www.trimble.com/mappingGIS/productcompatibility)

[1] Accuracy and reliability may be subject to anomalies due to multipath, obstructions, satellite geometry, and atmospheric conditions. Always follow recommended GNSS data collection practices. Specified ViewPoint RTX accuracy is typically achieved within 10 minutes.

Specifications subject to change without notice.

NORTH AMERICA
Trimble Navigation Limited
10368 Westmoor Dr
Westminster CO 80021
USA

EUROPE
Trimble Germany GmbH
Am Prime Park 11
65479 Raunheim
GERMANY

ASIA-PACIFIC
Trimble Navigation
Singapore Pty Limited
80 Marine Parade Road
#22-06, Parkway Parade
Singapore 449269
SINGAPORE

Northwest Instrument Aluminum Prism Pole, 2.5m, Co

Product Code: ES1964

Condition: New

| DESCRIPTION | MORE INFORMATION | REVIEWS | HELP |

2.5m Aluminum Prism Pole, 2 Sections, Press Lock. 5/8 x 11 Thread Size.

The NWI Aluminum Prism Pole has a compression lock with alternating bands of red and white. Measurements are in metric and tenths. The model NPP01 extends to 8.25' (2.5 m) and collapses to 4.6'.

It has 2 sections with a compression lock lever to hold the prism pole at your desired length. This aluminum pole has a 5/8 x 11 thread on the top and a sharp tip on the bottom. A carrying bag is included.