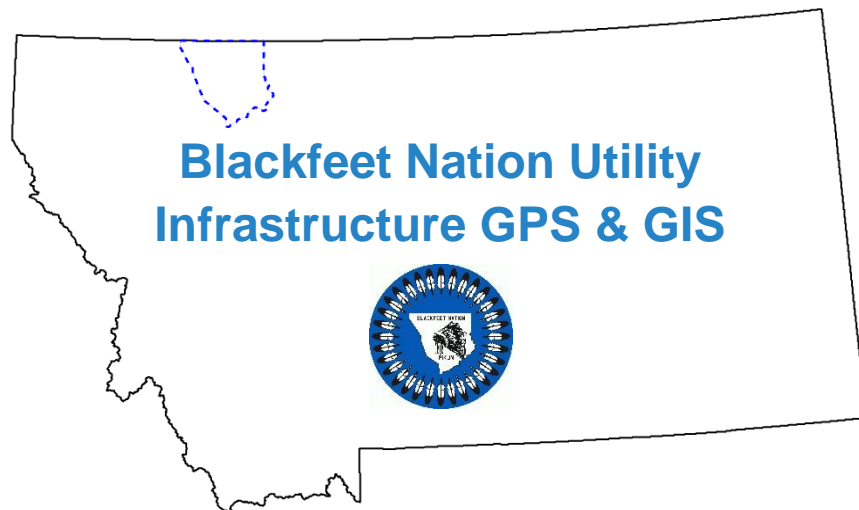


# MONTANA LAND INFORMATION GRANT APPLICATION

## STATE FISCAL YEAR 2020

### JULY 1, 2019 – JUNE 30, 2020



**APPLICATION FOR MLIA GRANT FUNDING**

**SECTION 1 – APPLICANT, PARTNER, AND PROPOSAL INFORMATION**

<b>Primary Applicant Contact Information</b>	
Name of Agency/Entity:	Blackfeet Nation
Department:	Transportation Planning
Division/Section:	Transportation
Street:	660 All Chiefs Road
City:	Browning
County:	Glacier
State:	Montana
Zip Code:	59417
<i>Project Manager Contact Information:</i>	
Name:	Don White
Title:	Transportation Director
Email Address:	<a href="mailto:donywhite@yahoo.com">donywhite@yahoo.com</a>
Phone Number:	406.338.7445
Fax Number:	406.338.7117
<i>Secondary Project Manager Contact Information:</i>	
Name:	Toni Grant
Title:	Assistant Transportation Director
Email Address:	<a href="mailto:granttoni@yahoo.com">granttoni@yahoo.com</a>
Phone Number:	406.338.7445
<b>MLIA Grant Funding Request &amp; Match:</b>	
Total Requested MLIA Funds:	\$22,970
Total Matched Funds:	\$20,982

<b>Proposal Information</b>	
Date Submitted:	2019-02-15
Identified Grant Priority:	Build Geographic Information Systems to Improve Local & Tribal Government Workflows, Business Processes, and Operations
Annual or Multi-Year Proposal:	Annual
Proposal Prepared By:	Blackfeet Nation
Short Title of Proposal:	Blackfeet Nation Utility Infrastructure GPS & GIS Project
<p>Executive Summary:</p> <p>The Blackfeet Tribe is proposing a project to improve the management and maintenance of utility infrastructure with field mapping and incorporation into the Geographic Information System (GIS) of the Tribe. The project will help Browning to address issues related to the location, operation, and maintenance of their water, sanitary sewer, and storm water infrastructure. Having the attributes and locations of utility infrastructure collected and managed in GIS will assist in future development and land use planning. The project will include:</p> <ul style="list-style-type: none"> <li>• Training of Tribal staff on the use of survey equipment and GIS software</li> <li>• Collecting survey grade GPS coordinates for existing infrastructure</li> <li>• Data consolidation of hard copy infrastructure maps with surveyed/field verified data</li> <li>• Population of water, sewer, and stormwater geodatabase feature datasets</li> <li>• Creating a set of electronic and hard copy maps that can be easily updated</li> </ul> <p>The project meets the purpose of Montana Land Information Act (MLIA) by implementing industry standards for the collection, data entry, and metadata management procedures for the Tribal Government's GIS, enhancing the digital infrastructure needed for land management for Tribes and Montana Communities. The successful completion of this project will enable the Tribe to evaluate their current infrastructure, determine possible improvement needs, and facilitate the efficiency of future transportation and land use planning.</p> <p>We are submitting two grant applications this year, the proposal you are reading, and a proposal for PLSS enhancement. In anticipation that only one may be funded, we would state that this application is our priority.<sup>1</sup></p>	
<b>List All Past Awarded MLIA Grants:</b>	

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<sup>1</sup> 1 In order to avoid duplication of efforts, many portions of this application are based upon the narrative found in the FY2020 MLIA Grant Application for the Fort Belknap Indian Community. This duplication is due to the similarities of the proposed projects and the ongoing collaboration of Tribes participating in the Rocky Mountain Mapping Project.

Fiscal Year 2020 Montana Land Information Act Grant Application Package

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

## SECTION 2 – RELEVANCE

This proposed project meets the grant priority of building GIS to improve local and Tribal government workflows, business processes, and operations as identified in the *Montana Land Information Plan State Fiscal Year 2020*. This category puts an emphasis on infrastructure and asset management, GIS data, and program development, which is what this project will accomplish.

The emphasis of the project will be the collection and expansion of water and sewer (both sanitary and storm) infrastructure data in the town of Browning. Our Tribe's collection of this survey grade spatial data for the proposed area will allow us to reconcile and incorporate existing digital and hard copy utility maps and attributes with accurate field locations in GIS. The data developed will be collected in ESRI ArcGIS Solutions developed geodatabases for water, sewer, and stormwater. Utilization and population of industry standard templates will expand the foundation of the Blackfeet Nation GIS and ensure compatibility with modeling and analysis tools available through existing software licensing, improving the sustainability, functionality, and future cost management of the project.

The MLIA grant would be used to provide training, provide funding to collect GPS data on the water and sewer infrastructure, data consolidation in-house and with a consultant, and the expansion of feature datasets for use in visualization, project management, analysis, and map production.

This project will focus on data collection and GIS integration. In addition to submittal requirements pursuant to this grant, we will expand our ArcGIS Online platform to share the completed datasets efficiently and accurately to all interested stakeholders. Please see the existing Browning Utility Survey at <http://arcg.is/aiT1T> (username: donywhite\_tribalgis password: BFTribalGIS17) collected by Blackfeet Tribal Transportation.

This resource will hopefully spur more interest in GIS and lead to interdepartmental collaboration for future data collection and GIS development.

## SECTION 3 – PUBLIC BENEFIT

The Blackfeet Indian Reservation is home to Blackfeet Tribe with an enrollment of approximately 17,000 members. Residents live on the reservation which encompasses 1.5 million acres in northwest Montana, bordered by Glacier National Park and Canada.

We have realized the value of GIS in keeping an accurate inventory of public infrastructure for our transportation department and therefore are applying for funding to further grow our GIS. Data collection will be rendered into GIS layers that can be used to determine the condition and identify potential improvements of the existing water and sewer infrastructure. We want to ensure that services are operating safely and efficiently for the residents they serve, develop and implement utility service maintenance plans if necessary, and efficiently plan sound additions to these services for new developments, while avoiding costly damages during construction activities.

Expanding this database would benefit our community and the public in the following areas:

Land Use Planning – Inform the Planning Department in immediate needs and future expansion. Having our utility infrastructure in GIS will allow the Planning Department to efficiently evaluate and analyze how services are impacted by other spatial features.

Infrastructure and Asset Management – Provide up-to-date field verified information of existing water, sanitary sewer, and storm sewer infrastructure, providing a full assessment of each service networks condition.

Emergency Operations – Determine any immediate repair needs. As the database is expanded, the geospatial data will save time and money in the location, isolation, and repair of damaged water and sewer lines.

Transparency – This publicly available data, will ensure better communication and efficiency between Tribal departments – as well as the town, county, and state governments. Sharing the information gathered will be critical to the grass roots effort of building a knowledge base that will perpetuate a cycle of data collection, GIS integration, and decision making.

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## SECTION 4 – PROJECT MANAGEMENT AND ORGANIZATIONAL CAPABILITY

The Blackfeet Nation, through Project Manager Don White, has pioneered mapping and surveying technology projects on the Blackfeet Indian Reservation. The following demonstrates the Blackfeet Nation Transportation Program's project management experience and qualifications:

1. Mapping and Survey Technology – In 2009, the Blackfeet Nation, together with other Rocky Mountain tribes, began their ten phase Tribal Mapping endeavor, which included the following efforts:
  2.
    - a. Development of Low Distortion Projections to reduce distortion associated with using the State Plane Coordinate System and reduction in resurveys/errors associated with using the Modified State Plane Coordinate System. Tribal projections, including the Blackfeet projection, can be found in ESRI 10.4.1 and newer.
    - b. Publication of the *Rocky Mountain Tribal Coordinate Reference System Handbook and User Guide* to assist surveyors and GIS professionals in the implementation of the Low Distortion Projections, which is available online at [www.marls.com/resources/rmtcrs-information/](http://www.marls.com/resources/rmtcrs-information/) (Association, Rocky Mountain Tribal Transportation).
    - c. CORS and RTN Establishment –The Tribe has recently implemented this technology and has partnered with Washington State to implement a pilot RTN network. The pilot project is available to view at [www.mtsrn.org](http://www.mtsrn.org), and includes partners such as the Montana State Department of Transportation, agricultural equipment dealers, CORS of the National Geodetic Survey, PBO operated by Unavco, and Missoula County.
    - d. Collect and Compile GIS Based PLSS and Infrastructure Data – As a result of previous mapping project efforts, the Tribe will be able to efficiently collect survey-grade data to create GIS based data that can be accessed by all land users

In 2013, 2015, and 2017, the Tribe received the ACEC Engineering Excellence Honor Awards for its work on the development of Low Distortion Projections, publication of the Tribal Mapping Handbook and User Guide and implementation of CORS.

Mr. White will work directly with the field staff and any consulting firms to ensure that the goals and objectives of this project are understood and met. By coordinating duties with schedules, Mr. White will oversee the locating infrastructure with collection times. He will also direct data processing and quality control reviews to run concurrently with collection to identify any quality errors which can be immediately corrected or rectified as needed. Mr. White has over 20 years of experience in directing and managing several awarded grants projects from a variety of entities over the years.

Since existing Tribal mapping projects are a part of the Blackfeet Nation Transportation Improvement Program, the Tribe already routinely prepares and submits quarterly financial and progress reports to comply with federal reporting requirements. The Tribe is prepared to

modify the reports to fit State reporting requirements. The Blackfeet Chief Administrative Officer (CAO) will be the grant administrator who will coordinate with the Blackfeet Tribal Transportation Department to oversee the project status and verify the required State reporting for a successful project. The CAO is a Tribally appointed individual with staff members who have the skills and capability to administer this grant as they have years of working in the reporting requirements of multiple agencies and departments in addition to ensuring their local government is funded and operating smoothly.

Mr. Rick Ollinger is the Blackfeet Tribal Transportation Surveyor who will be helping with data collection and processing. Mr. Ollinger joined the transportation department in 2015 and has been learning and growing in his use of GPS equipment being able to collect the utility infrastructure with some additional training and guidance, which will be provided by a consultant when completing tasks associated with this project. The skills learned during training and field work will enable Mr. Ollinger to perform these same tasks independently to build on the GIS foundation created during the proposed project

Mr. Cliff Ollinger is the Blackfeet GIS Director with the Blackfeet GIS Department. He will be directly involved with data processing and is capable of performing tasks in ArcGIS. Mr. Ollinger will participate in the GIS development and population with field collected data with the training and assistance as needed from a consultant. The skills learned during training and GIS development will enable Mr. Ollinger to perpetuate these tasks in a standard form independently to build on the GIS foundation created during the proposed project.

Staff at Two Medicine Water, the Tribal water department, will continue their efforts of locating utilities to be marked by the GPS equipment. Their knowledge in this process has worked in the creation of the existing utility GIS data, but now two staff members will be trained in using the Tribal GPS equipment to collect infrastructure data from Mr. Ollinger and a consultant. Training staff at Two Medicine Water will allow their crews to collect their own data and incorporate the ability of individual Tribal departments to begin collecting and implementing GIS data for their own uses. The more invested stakeholders are in their data, the more development and public available information will be available for other Tribal departments, which simply don't have the resources to collect other department's desired information.

Specialized survey services, including calibration, and accuracy verification will be provided by an engineering consultant we selected through a Qualification Based Selection process. The outside consulting firm is licensed in the state of Montana to perform survey work on Tribal lands and will provide training in the field data collection methods. The chosen firm also has a qualified GIS Professional that will assist and train staff on data processing, input, and organizing in GIS. This training and assistance will provide a foundation from which Tribal staff can continue to gather data and update their spatial data collections more independently so that the program and process may continue beyond the grant award.

We support the Montana State Library's mission to support publicly accessible data and are establishing a GIS, non-confidential data will be made accessible throughout the Tribe as a web-based mapping application. To further support the MLIA mission, the Tribe will provide the subsequent PLSS and infrastructure to the Montana State Library and agrees to comply with data submission requirements.



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## SECTION 5 – SCOPE OF WORK

**Goal #1:** Goal #1 will populate *Water Geometric Network Editing and Analysis* (ESRI) preconfigured geodatabases *SewerStormwater*, *Stormwater*, and *WaterDistribution* with features that accurately represent the existing condition and operation capacity of water and sewer services for Browning. The coordinate system will be the NAD 83 Blackfoot Low Distortion Projection, as outlined in the *Tribal Coordinate Reference System Handbook*. Metadata will be generated for each layer in compliance with the *Metadata Standard for the Montana GIS Data List* (MSL). This goal is dependent on completion of further GPS data collection.

The specific objectives to meet this goal are as follows:

- Objective 1. The collection of field points with attributes for all the municipal water, sanitary sewer, and storm sewer services in the town of Browning.
- Objective 2. Process field data into GIS.
- Objective 3. Creation of pipe networks/linework based on the field data, field locates, and record utility plans. Editing and data entry of office calculated attributes. Upon review and finalization of data, it will be submitted to the Montana State Library.
- Objective 4. The training of the Tribal Transportation Program on the editing and analysis of the finished data sets for better utilization of the data in the planning and scoping of future land development.

The following tasks and activities are required to fulfill the objectives of developing the Blackfoot Utility Infrastructure GIS upon the Statement of Work and receipt of funding.

Task A. Research and Planning – In conjunction with consulting technical experts, our Tribal Surveyors will research and compile recorded utility documents for Browning, complete interviews with knowledgeable experts of the existing services, and schedule utility locates. We will work with our consultant to compile existing digital and hard copy maps and as-built records to be scanned and georeferenced so that the infrastructure can be digitized into GIS layers such as mains, valves, hydrants, etc. for inclusion in the ESRI. This task is estimated to take 4 weeks.

Task B. Field Work – For the initial survey, our Tribal Surveyors and two staff from Two Medicine Water will train with a consultant on the practices and field procedures to standardize the collection of the various utility attributes and proper documentation for the entire project using the *Rocky Mountain Region Tribal Field Survey Standards Manual*. We will use our existing survey grade GPS equipment (Trimble R8 rover paired with Trimble TSC3 data collector) to collect location data and field data for the reservation's water and wastewater infrastructure including water and sewer mains, valves and manholes. Quality Control of the field data will be overseen by a consultant's Professional Land Surveyor (PLS) and GIS Professional (GISP). This task is estimated to take 4 weeks.

Task C. Data Processing – Processing and QC of the raw survey data by available Tribal staff or a consultant's Land Surveyor In-Training (LSI) under the supervision of the PLS. Import and post-process point data in Trimble Business Center (TBC). Quality

Control review to be completed by the Tribal survey crew that collected the field data. This task is estimated to take 2 weeks.

Task D. Data Transfer and Editing – Our Tribal Surveyors will work in conjunction with a consulting GISP to transfer processed data into the appropriate geodatabases. Once the geodatabases are fully populated, our Tribal Surveyors will create linework based on the field data, field locates, and recorded utility plans. Previously collected data currently in the database will also undergo linework creation to create a complete database of water and sewer infrastructure. Editing of point attributes and data entry of office calculated line attributes to be completed by, LSI, Engineer In-Training (EIT), and GISP. This work will include creation of MSL compliant metadata. This task is estimated to take 4 weeks.

Task E. Review of GIS Data Layers – Quality Assurance review and finalization of data will be completed by our GIS technicians and consulting GISP. Finalized data will be projected to NAD 83 HARN State Plane Montana (Meters) to meet MLIA Grant requirements and be submitted to the Montana State Library. This task is estimated to take 2 weeks.

Task F. Equipment – We have all the necessary equipment and software needed to complete the project. The Blackfeet Transportation Department currently owns survey grade GPS equipment (Trimble R8 Rover and Trimble TSC3 data collector) and processing software necessary for successful implementation of this project. As an eligible Tribal Community, we have free access to an extensive list of ESRI software products and extensions through an Enterprise License Agreement (ELA) between ESRI and the Bureau of Indian Affairs (BIA), and currently implement ArcGIS Desktop and ArcGIS Pro. These components provide us an opportunity to build highly accurate and sustainable GPS/GIS utility geodatabases.

**Goal #2:** Generate set of Hard Copy Report and Hard Copy Maps for Tribal Departments. Our staff will generate the following maps, as well as one set of hard copy maps and PDF files for making additional copies. Our staff will update maps in the future.

Objective E: Create maps of water, sanitary sewer, and storm sewer utility infrastructure. Utilizing ArcGIS software, digital and hardcopy maps will be created.

Task G: Map Creation – Our Tribal staff will utilize their software and printers to create maps for distribution to the public. This task is estimated to take 2 weeks.

Map deliverables (hard copy and PDF):

- GPS Coordinate Data for Tribal infrastructure
- Water System (mains, valves, hydrants)
- Sanitary Sewer System (mains, manholes, cleanouts)
- Storm Sewer System (mains, inlets, outlets)

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**Project Schedule:** This timeline is a conservative estimate but allows for the additional time to meet with agencies or the public as needed.

Task	Start	End	Duration
<b>Goal 1: Create Basic GIS Layers for the Blackfeet Database</b>			
Task A: Research and Planning	July 1 <sup>st</sup> , 2019	July 29 <sup>th</sup> , 2019	28 Days
Task B: Collect Survey Data (Browning)	July 29 <sup>th</sup> , 2019	August 26 <sup>th</sup> , 2019	28 Days
Task C: Data Processing	August 26 <sup>th</sup> , 2019	September 9 <sup>th</sup> , 2019	14 Days
Task D: Data Transfer and Editing	September 9 <sup>th</sup> , 2019	October 7 <sup>th</sup> , 2019	28 Days
Task E: Review of GIS Data Layers	October 7 <sup>th</sup> , 2019	October 21 <sup>st</sup> , 2019	14 Days
Task F: Equipment	-	-	-
<b>Goal 2: Generate Set of Hard Copy Report and Hard Copy Maps for Tribal Departments</b>			
Task G: Map Creation	October 21 <sup>st</sup> , 2019	November 4 <sup>th</sup> , 2019	14 Days

**SECTION 6 – BUDGET JUSTIFICATION AND BUDGET TABLE**

Project expenditures were estimated on an hourly basis for intern/student training and labor and professional fees for the Tribal surveyor and a consultant. Hourly fees were determined based on the rate sheet for the Tribe’s Consultant and the Inter/Student labor rates were estimated based on typical hourly rates for similar positions.

The project budget is as follows:

	Who	Cost/Hour	Hours	Total Cost
<b>Goal #1. Task A: Research and Planning</b>				
Tribal Surveyor/GIS Technician	Tribe	\$30.00	160	\$4,800.00
GISP/Survey Technician	Consultant	\$88.00	40	\$3,520.00
<b>Goal #1. Task B: Field Work</b>				
Tribal Intern/Student	Tribe	\$20.00	240	\$4,800.00
Tribal Surveyor	Tribe	\$30.00	240	\$7,200.00
Survey Technician	Consultant	\$88.00	80	\$7,040.00
Survey Equipment	Tribe	\$25.00	240	\$6,000.00
Travel and Mileage	Tribe	\$0.58 per mile	1400 miles	\$812.00
<b>Goal #1. Task C: Data Processing</b>				
Tribal Surveyor	Tribe	\$30.00	40	\$1,200.00
GISP/Survey Technician	Consultant	\$88.00	20	\$1,760.00
<b>Goal #1. Task D: Data Transfer and Editing</b>				
Tribal Surveyor/GIS Technician	Tribe	\$30.00	60	\$1,800.00
GISP/Survey Technician	Consultant	\$88.00	30	\$2,640.00
<b>Goal #1. Task E: Review of GIS Data Layers</b>				
Tribal Surveyor/GIS Technician	Tribe	\$30.00	10	\$300.00
GISP/Survey Technician	Consultant	\$88.00	10	\$880.00
<b>Goal #2. Task G: Map Creation</b>				
Tribal Surveyor/GIS Technician	Tribe	\$30.00	40	\$1,200.00
<b>Total</b>				<b>\$43,952.00</b>

The Blackfeet Tribal Transportation Department will provide a considerable in-kind contribution of labor and equipment to the project. To enhance our Tribe’s GIS for better planning, the Blackfeet Tribal Transportation Department will provide the equipment, travel and mileage, half of the data research efforts to locate existing records incurred by Tribal employees and the consultant, and half of the data collection and processing costs incurred from Tribal employees and the consultant. The survey equipment, software, internet, vehicles, field safety and safety signage will all be provided by the Tribe to ensure that everything is in place to complete the work as needed.

It is proposed that MLIA funding be used for the remaining half of the data research, the intern/student labor during collection, the remaining half of the data collection and processing, in addition to the costs of data editing, review, and map creation.

**MLIA GRANT BUDGET SUMMARY TABLE**

<b>MLIA GRANT BUDGET SUMMARY</b>									
	<b>MLIA Summary</b>	<b>Applicant Summary</b>			<b>Funding Partner Summary*</b>			<b>Total: MLIA Share, Applicant Subtotal, Partner Subtotal</b>	
Category	MLIA Share	Applicant Cash	Applicant In-kind	Applicant Subtotal	Funding Partner 1	Funding Partner 2	Partner Subtotal		
a. Personnel	\$14,100		\$7,200	\$7,200				\$21,300	
a. 1. Fringe Benefits									
b. Travel			\$812	\$812					\$812
c. Equipment			\$6,000	\$6,000					\$6,000
d. Supplies & Materials									
e. Contractual	\$8,870		\$6,970	\$6,970					\$15,840
f. Other									
Total	\$22,970			\$20,982				\$43,952	

**\*Modify, add, or remove the funding partners column(s) as needed to define a clear budget**

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SECTION 7 – RENEWABLE GRANT ACCOUNTABILITY

**SECTION 8 – CHECKLIST**

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

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



**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.

DON WHITE

Name (print or type)

TRANSPORTATION PLANNER  
DON WHITE

Title (print or type)

Don White

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

2/15/2019

Date

SECTION 10 – WORKS CITED

Association, Rocky Mountain Tribal Transportation. "Rocky Mountain Tribal Coordinate Reference System: Handbook and User Guide." 30 September 2014.  
*NECIUSA.com*. Web. 11 February 2019.