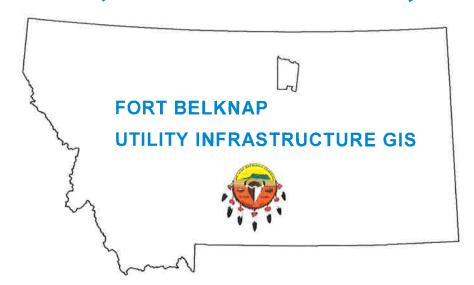
MONTANA LAND INFORMATION GRANT APPLICATION STATE FISCAL YEAR 2020

JULY 1, 2019 - JUNE 30, 2020



APPLICATION FOR MLIA GRANT FUNDING

SECTION 1 – APPLICANT, PARTNER, AND PROPOSAL INFORMATION

P	imary Applicant Contact Information
Name of Agency/Entity:	Fort Belknap Indian Community
Department:	Transportation-Transit Department
Division/Section:	Transportation
Street:	258 Agency Main Street
City:	Harlem
County:	Blaine
State:	MT
Zip Code:	59526
	Project Manager Contact Information:
Name:	C. John Healy Sr.
Title:	Transportation Director
Email Address:	jhealy@ftbelknap.org
Phone Number:	406-353-2447 ext 103
Fax Number:	406-353-2445
Seco	ndary Project Manager Contact Information:
Name:	Wes Cochran
Title:	Assistant Director
Email Address	wcochran@ftbelknap.org
Phone Number:	406-353-2447 ext 104
N	LIA Grant Funding Request & Match:
Total Requested MLIA Fund	\$23,780
Total Matched Funds:	\$20,704

Proposal Information		
Date Submitted:	2019-02-14	
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:	Fort Belknap Indian Community	
Short Title of Proposal:	Fort Belknap Utility Infrastructure GIS	

Executive Summary:

The Fort Belknap Indian Community (FBIC) 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 Fort Belknap Agency 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:

- Training of Tribal staff on the use of survey equipment and GIS software
- Collecting survey grade GPS coordinates for existing infrastructure
- Data consolidation of hard copy infrastructure maps with surveyed/field verified data
- Population of water, sewer, and stormwater geodatabase feature datasets
- Creating a set of electronic and hard copy maps that can be easily updated

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 FBIC to evaluate their current infrastructure, determine possible improvement needs, and facilitate the efficiency of future transportation and land use planning.¹

List All Past Awarded MLIA Grants:

MLIA FY 2015 Fort Belknap GIS Project (FB-GIS)—Project total cost \$43,604 with MLIA Share \$18,570

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¹ 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 Blackfeet Nation. This duplication is due to the similarities of the proposed projects and the ongoing collaboration of Tribes participating in the Rocky Mountain Mapping Project.

(required for	Funding Partners: 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

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 of water and sewer (both sanitary and storm) infrastructure data in the town of Fort Belknap Agency. 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 set a strong foundation for the FBIC 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 creation 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 intend to utilize ArcGIS Online as a platform to share the completed datasets efficiently and accurately to all interested stakeholders. This resource will hopefully spur more interest in GIS and lead to interdepartmental collaboration for future data collection and GIS development.

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SECTION 3 - PUBLIC BENEFIT

The Fort Belknap Indian Reservation is home to the Assiniboine and Gros Ventre Tribes with an enrollment of approximately 4,000 members. Residents live on the reservation which encompasses 650,000 acres of plains and grasslands in northcentral Montana.

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 expand our GIS infrastructure. Data collected will be populate GIS layers, enabling us to effectively evaluate and track condition and 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, prevent costly damages during maintenance and construction activities, and efficiently plan sound additions to these services.

Creating 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 current field verified information about existing water, sanitary sewer, and storm sewer infrastructure, providing a platform for assessment of each service networks condition.

Emergency Operations – Identify immediate repair needs. Expansion of our GIS will save time and money in the location, isolation, and repair of damaged water and sewer lines.

Transparency – Ensure better communication and efficiency. Sharing non-sensitive infrastructure data, will improve effective communication of infrastructure needs between Tribal departments, town, county, and state governments. Incorporating utility infrastructure into our GIS is 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 ORGANZIATIONAL CAPABILITY

The Fort Belknap Indian Community, through Project Manager C. John Healy, Sr., has pioneered mapping and surveying technology projects on the Fort Belknap Indian Reservation. The following demonstrates the Fort Belknap Indian Community Transportation Program's project management experience and qualifications:

1. Mapping and Survey Technology – In 2009, the Fort Belknap Indian Community, together with other Rocky Mountain tribes, began their ten phase Rocky Mountain Mapping Project, 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 Fort Belknap 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/ (Rocky Mountain Tribal Transportation Association, 2014).
- 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, 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. Healy will serve as the Project Manager for this grant and 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. Healy will oversee the location of infrastructure and 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. Mr. Healy 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 Fort Belknap Indian Community 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 the reporting requirements of this grant. The Fort Belknap Chief Administrative Officer (CAO) will be the grant administrator who will coordinate with the Fort Belknap 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 experience adapting to and fulfilling the reporting requirements of multiple agencies and departments, in addition to ensuring their local government is funded and operating smoothly.

Ms. Dawn Chandler is the Fort Belknap Tribal Transportation Surveyor who will be doing data collection and processing. Ms. Chandler joined the transportation department in 2014 and has been learning and growing in her 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. Ms. Chandler is also able to perform tasks in ArcGIS and will participate in the GIS development and population with field collected data with the training and assistance of a consultant. The skills learned during training, field work, and GIS development will enable Ms. Chandler to perform these same tasks independently to build on the GIS foundation created during the proposed project.

Mr. Wes Cochran is the Fort Belknap Tribal Transportation Assistant Director who is also a capable surveyor and has received training on utilizing the Tribe's Trimble GPS equipment as well as the ArcMap software provided by ESRI. Mr. Cochran has utilized ArcMap extensively at the Tribal Transportation Department for over 10 years where the FBIC has created a network of BIA, Tribal, and E911 Routes all in this geospatial database. Mr. Cochran operates, maintains, and updates portions of this geospatial data as necessary, and administers and maintains software licenses for ArcMap to different departments under the FBIC umbrella. Mr. Cochran will be available to assist in the field work and office data collection and has an extensive knowledge on the history of Fort Belknap Agency. Mr. Cochran will attend the same training events Ms. Chandler participates in so that he too can grow in his skills and understanding of the field and office work needed to successfully complete the project.

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 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 collect data and update our GIS 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-sensitive data will initially be made accessible to the public via ArcGIS Online. To further support the MLIA mission, the Tribe will provide the subsequent PLSS and infrastructure developed 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 operating capacity of water and sewer services for Fort Belknap Agency. The coordinate system will be the NAD 83 Fort Belknap 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 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 Fort Belknap Agency.

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 Fort Belknap 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 Fort Belknap Agency, complete interviews with those knowledgeable of the existing services, and schedule utility locates. We will work with our consultant to compile existing digital and hard copy as-built maps to be scanned and referenced in the digitization of infrastructure once survey locates are complete. This task is estimated to take 4 weeks.

Task B. Field Work – Our Tribal Surveyors will train with a consultant on survey practices and field procedures. Standardized collection of utility attributes and proper documentation for the project will reference 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

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PLS. Import and post-processing of 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 populated, our Tribal Surveyors will create linework based on the field data, field locates, and recorded utility plans. 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 Place 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 FBIC 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 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):

- Tribal Utility infrastructure (all developed)
- Water System (mains, valves, hydrants)
- Sanitary Sewer System (mains, manholes, cleanouts)
- Storm Sewer System (mains, inlets, outlets)

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
Goal 1: Create Basic GIS	Layers for the FBIC Da	tabase	
Task A: Research and Planning	July 1 st , 2019	July 29 th , 2019	28 Days
Task B: Collect Survey Data (Fort Belknap Agency)	July 29 th , 2019	August 26 th , 2019	28 Days
Task C: Data Processing	August 26th, 2019	September 9 th , 2019	14 Days
Task D: Data Transfer and Editing	September 9 th , 2019	October 7 th , 2019	28 Days
Task E: Review of GIS Data Layers	October 7 th , 2019	October 21st, 2019	14 Days
Task F: Equipment	-	·	(-)
Goal 2: Generate Set of Hard Copy Repor	t and Hard Copy Maps	for Tribal Departments	S
Task G: Map Creation	October 21st, 2019	November 4 th , 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 Intern/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
Goal #1. Task A: Research and Plann	ing			
Tribal Surveyor/GIS Technician	Tribe	\$30.00	160	\$4,800.00
GISP/Survey Technician	Consultant	\$88.00	40	\$3,520.00
Goal #1. Task B: Field Work	=-\$:			
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	800 miles	\$464.00
Goal #1. Task C: Data Processing				
Tribal Surveyor	Tribe	\$30.00	40	\$1,200.00
GISP/Survey Technician	Consultant	\$88.00	20	\$1,760.00
Goal #1. Task D: Data Transfer and E	diting			
Tribal Surveyor/GIS Technician	Tribe	\$30.00	60	\$1,800.00
GISP/Survey Technician	Consultant	\$88.00	30	\$2,640.00
Goal #1. Task E: Review of GIS Data	Layers			•
Tribal Surveyor/GIS Technician	Tribe	\$30.00	10	\$300.00
GISP/Survey Technician	Consultant	\$88.00	10	\$880.00
Goal #2. Task G: Map Creation		·		
Tribal Surveyor/GIS Technician	Tribe	\$30.00	40	\$1,200.00
Total	10 =			\$43,604.00

The Fort Belknap 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 Fort Belknap 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,

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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.

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MLIA GRANT BUDGET SUMMARY TABLE

		MLIA	GRANT BUI	MLIA GRANT BUDGET SUMMARY	IARY			
	MLIA Summary	App	Applicant Summary	nary	Funding	Funding Partner Summary*	mmary*	Total:
Category	MLIA Share	Applicant Cash	Applicant In-kind	Applicant Subtotal	Funding Partner 1	Funding Partner 2	Partner Subtotal	MLIA Share, Applicant Subtotal, Partner Subtotal
a. Personnel	\$10,650		\$10,650	\$10,650				\$21,300
a. 1. Fringe Benefits								
b. Travel			\$464	\$464				\$464
c. Equipment			\$6,000	\$6,000				\$6,000
d. Supplies & Materials								
e. Contractual	\$7,920		\$7,920	\$7,920				\$15,840
f. Other								
Total	Total \$18,570			\$25,034				\$43,604

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

SECTION 7 - RENEWABLE GRANT ACCOUNTABILITY

The MLIA FY2015 Fort Belknap GIS Project (FB-GIS) grant received from the Land Information Advisory Council was considered overall successful as detailed in the final report below:

From the report dated 6/15/2015, "The average attendance rate for the trainings dropped during the second half of trainings. While we had a number of interested individuals join the training sessions throughout the training period, only a few actually participated on a regular basis. We did have one trainee stick with the trainings from beginning to end, achieving a high level of understanding and knowledge of ArcGIS for future use. The pace of the training moved slower throughout than originally anticipated due to trainees falling behind in the course content and the length of time required to carry out exercises. In the final quarter, data standards were covered along with some exercises in positional accuracy. The two final trainings were devoted to 1 to 1 assistance with trainee projects. As of 6/5/2015, the trainees achieved only partial completion of their projects. However, based upon the outcomes of the curriculum, over 50% of the trainees rated above average in comprehension. Originally, QGIS was planned to be taught along with ArcGIS, however, since Fort Belknap tribal departments have access to free ArcGIS licenses through the Bureau of Indian Affairs and also due to time constraints, QGIS will not be covered in the trainings beyond a basic introduction to the program as an open-source alternative. The training document is not as extensive as originally planned."

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SECTION 8 - CHECKLIST

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

Initial or mark n/a	Completed Required Task		
1.11.	Proposal Prepared by an outside party – I have read this document in its entirety. (if applicable)		
1.8.	Section 1 – Applicant, Partner, and Proposal Information		
1.71	. Primary Applicant Information		
N/A	Funding Partner (if applicable)		
1.71	Proposal Information		
7.71	List All Past Awarded MLIA Grants		
7.21.	Section 2 – Relevance (300 max word limit)		
7.71:	Section 3 – Public Benefit (if applicable)		
17%	Section 4 – Project Management (if applicable) Section 5 – Scope of Work Narrative (4-page limit)		
7.76			
7.71.	Section 6 – Budget Justification Narrative and Table (3-page limit) Budget Justification Narrative		
1.71			
Complete Budget Table	Complete Budget Table		
N/A Section 7 – Funding Partner Statements of Support (if applicable)			
77.	Section 8 – Renewable Grant Accountability Narrative (if applicable)		
N/A	FY2019 Grantee Report (if applicable)		
27	Past MLIA Grant Project Narratives (FY2018 - FY2015) (if applicable)		
7.2/-	Section 9 – A Signed Authorizing Statement		

SECTION 9 – AUTHORIZING STATEMENT

Authorizing Statement

I hereby certify that I have read the application and the information and all statements in this application are true, complete and accurate to the best of my knowledge and that the project or activity complies with all applicable state, local and federal laws and regulations.

I further certify that this project will comply with applicable statutory and regulatory standards.

I further certify that I am (by my signature) authorized to enter into a binding agreement with the Montana State Library to obtain a grant if this application receives approval.

Name (print or type)

Title (print or type

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

Date

SECTION 10 - WORKS CITED

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