

**MONTANA GEOSPATIAL  
INFORMATION ACT  
GRANT APPLICATION  
STATE FISCAL  
YEARS 2027-2028  
JULY 1, 2026 – JUNE 30, 2028**

***DEVELOP GALLATIN WATERSHED  
HYDROLOGY DATA FOR 3DHP***



# APPLICATION FOR FY2027 MGIA GRANT FUNDING

## SECTION 1 – ORGANIZATION, PARTNER, AND PROPOSAL INFORMATION

Provide basic information about your organization, the total MGIA grant request and any match, and a short executive summary of your project (up to 400 words). Identify the FY2027 MGIA grant program priority, whether the project is one or multiple years, and list all funding partners.

<b>Primary Applicant Contact Information</b> <i>(Please fill this section out in its entirety)</i>	
<b>Name of Agency/Entity:</b>	Montana Department of Natural Resources and Conservation
<b>Department:</b>	Water Resources Division
<b>Division/Section:</b>	Water Sciences Bureau
<b>Street:</b>	1424 9th Ave
<b>City:</b>	Helena
<b>County:</b>	Lewis and Clark
<b>State:</b>	MT
<b>Zip Code:</b>	59601
<b>Project Manager Contact Information:</b>	
<b>Name:</b>	David Saba
<b>Title:</b>	Hydrologist
<b>Email Address:</b>	david.Saba@mt.gov
<b>Phone Number:</b>	406-444-6626
<b>Secondary Project Manager Contact Information</b>	
<b>Name:</b>	Todd Blythe
<b>Title:</b>	Section Supervisor
<b>Email Address</b>	todd.blythe@mt.gov
<b>Phone Number:</b>	406-438-0717
<b>Authorized Signer Contact Information</b>	
<b>Name</b>	Jake Mohrman
<b>Title</b>	Water Sciences Bureau Chief
<b>Email Address</b>	Jacob.Mohrmann@mt.gov
<b>Phone Number</b>	406-444-7022

<b>Funding Partners</b> <i>(required for each partner, add rows as needed)</i>	
<b>Name of Contact:</b>	Click or tap here to enter text.
<b>Name of Agency:</b>	Click or tap here to enter text.
<b>Street:</b>	Click or tap here to enter text.
<b>City:</b>	Click or tap here to enter text.
<b>County:</b>	Click or tap here to enter text.
<b>State:</b>	Click or tap here to enter text.
<b>Zip Code:</b>	Click or tap here to enter text.
<b>Contact Email Address:</b>	Click or tap here to enter text.
<b>Contact Phone Number:</b>	Click or tap here to enter text.

**NOTE:** Each identified Funding Partner MUST also submit a letter of support.

<b>Proposal Information</b>	
<b>Date Submitted:</b>	02/23/2026
<b>Identified Grant Priority:</b> <i>*See the <a href="#">Montana Geospatial Info Plan</a> for information on priorities.</i>	MSDI Hydrography
<b>Proposal Prepared By:</b>	David Saba
<b>Short Title of Proposal:</b>	Develop Gallatin Watershed hydrology data for 3DHP
<b>Executive Summary</b>	
<p><b>This project will develop a hydrography-based geospatial data framework for the Gallatin watershed by linking existing hydrology, water quality, and related geospatial datasets to the U.S. Geological Survey’s 3D Hydrography Program (3DHP) network. The Montana State Library has identified 3DHP hydrography as a statewide priority to modernize and standardize Montana’s surface water data infrastructure. This project directly advances that priority by using the emerging 3DHP network as the organizing backbone for watershed-scale data integration.</b></p> <p><b>The Gallatin watershed is one of Montana’s most studied and monitored basins; however, its geospatial data are currently fragmented across agencies, organizations, and consultants. This project will compile existing geospatial and linked hydrologic and water quality datasets, establish a consistent data schema, and spatially align those datasets to preliminary 3DHP flowlines and catchments while the new 3DHP for the Gallatin Watershed is under</b></p>	

development. By associating monitoring locations, studies, and attributes with standardized 3DHP identifiers, the project will create a replicable framework for hydrography-centered data management.

The Montana Department of Natural Resources and Conservation (DNRC) will lead technical implementation, with dedicated intern support for data compilation, formatting, metadata development, and quality control. The DNRC will hire a local watershed group as a consultant to manage a stakeholder working group to identify datasets, clarify data ownership and update responsibilities, and support consistent standards for formatting and metadata.

In addition to compiling existing datasets, the project will associate discharge measurements and hydrologic attributes with standardized 3DHP permanent identifiers. Where spatial gaps are identified through network analysis, limited targeted flow measurements may be collected to improve reach-level representation or enhance existing hydrology data, such as rating curve development. This approach strengthens the functional value of the 3DHP framework by integrating hydrologic attributes directly into the hydrographic network.

Project deliverables will include a compiled and standardized geospatial database, documented data schema, and a stakeholder-informed framework for ongoing updates. While the 3DHP features are being developed concurrently with this project, it is unlikely they will be finalized by the end of the grant term. As such, this database will be linked to the existing 3DHP hydrography layer and a SOP developed for linking data to the updated 3DHP features currently being developed for the Gallatin Watershed. By strengthening alignment with the State's 3DHP hydrography priority, this project will improve data discoverability, reduce duplication of monitoring efforts, and enhance coordination among agencies and communities managing water resources in the Gallatin basin.

<b>MGIA Grant Funding Request and Match</b>	
<b>Total Requested MGIA Funds:</b>	\$41,875.00
<b>Total Matched Funds:</b>	\$41,907.95

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## **SECTION 2 – PUBLIC BENEFIT**

Briefly explain how your project supports one or more MSDI Themes or initiatives, what you will deliver, and how the results will benefit multiple agencies and Montana communities through local impact, cost savings, or efficiency gains.

10% of the Total Score - 300-word limit

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This project will develop a standardized framework for linking diverse geospatial datasets from multiple sources to the 3D Hydrography Program (3DHP) network within the Gallatin watershed. While the Gallatin is one of the most intensively studied and monitored watersheds in Montana, data is currently fragmented across agencies, consultants, and research groups, with no centralized, spatially coherent repository. This fragmentation leads to duplicated monitoring efforts, inconsistent datasets, and limited awareness of existing projects among practitioners and decision-makers.

By leveraging the 3DHP hydrographic network as the organizing backbone, this project supports MSDI themes of data integration, shared geospatial infrastructure, and improved accessibility of authoritative datasets. The primary deliverable will be a geospatial framework and associated datasets that allow users to view, query, and relate monitoring locations, studies, and derived data to specific stream reaches and catchments. This framework will be directly applicable beyond the Gallatin watershed and can be replicated statewide.

Through consolidation of geospatial information within a shared, hydrography-based framework, this project will significantly improve coordination and efficiency among agencies, local governments, researchers, and watershed partners working in the Gallatin basin. A centralized, spatially referenced view of existing data and projects will reduce redundant monitoring and analysis, minimize conflicting datasets, and improve awareness of ongoing and completed work. This increased transparency will support more efficient allocation of public resources, save costs by eliminating duplicate data collection, streamline interagency collaboration, and enable faster, more consistent decision-making. Montana communities in the Gallatin watershed will benefit from improved access to authoritative geospatial information that supports water management, infrastructure planning, land-use decisions, and long-term watershed resilience.

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### **SECTION 3 – PROJECT MANAGEMENT AND ORGANIZATIONAL CAPABILITY**

Use this section to show that your organization and team can successfully deliver and manage the project. Briefly describe your relevant experience with similar projects or grants, name the primary and secondary Project Managers and their roles, and explain how you will oversee any consultants, meet reporting requirements, and invoice the State Library for reimbursement.

10% of Total Score - 2-page limit

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The Montana Department of Natural Resources and Conservation (DNRC), Water Resources Division, has extensive experience developing, managing, and maintaining large-scale geospatial databases and public-facing data platforms that integrate information from multiple internal and external sources. DNRC has successfully delivered and continues to support statewide tools such as the State Water Use Database (StAGE), Water Mapper, and the Montana Flood Risk Map Viewer. These platforms demonstrate DNRC's capacity to manage complex geospatial datasets, apply consistent quality assurance and quality control (QA/QC) standards, and provide long-term access to authoritative data for agencies, local governments, and the public.

The project will be led by DNRC hydrologist David Saba, with direct experience in watershed-scale geospatial analysis, hydrography-based data management, and interagency coordination. Todd Blythe, hydrologist and surface water section supervisor with DNRC, will act as the secondary project manager contributing expertise in grant management and hydrology. DNRC will serve as the primary project administrator, responsible for day-to-day project management, technical implementation, QA/QC of datasets, reporting, and fiscal oversight. Data compilation, documentation, and quality control will be conducted internally by DNRC staff, with support from a dedicated intern to assist with data organization, metadata development, and integration tasks. This staffing approach ensures technical consistency while maintaining cost efficiency.

The DNRC Water Resources Division has a full-time Grant Administrative Specialist (GAS) who is responsible to ensure all contractual arrangements (contractor and/or subrecipient) are in place and have followed State of Montana procurement processes, all grant reporting, consultant invoice review and processing, grant reimbursement review and processing, and grant program compliance. The GAS will manage the reporting, invoicing, and compliance for the grant and work with Montana State Library grant manager to ensure all requirements are met.

The Water Resources Division has extensive experience managing federal and state grant funds. A sampling of current grant funded projects include Expansion of WRD Hydrology Data Portal (Reclamation and Development Grant, DNRC-CARDD, \$150,000); FY24 National Dam Safety Program State Assistance Grant (FEMA, \$253,491); FY25 National Dam Safety Program State Assistance Grant (FEMA, \$251,864); FY22 High Hazard Potential Dam Program-Willow Creek Dam Rehabilitation (FEMA, \$583,196); and, FY24 High Hazard Potential Dam Program-

Willow Creek Dam Rehabilitation (FEMA/DES SRF, \$482,303). Additionally, the Water Resources Division Grant Administrative Specialist administers the CITT Off-Season Stock Water Mitigation Grant Program with 80 grant recipients awarded \$4 million.

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## SECTION 4 – SCOPE OF WORK

The Scope of Work (SOW) section explains what your project will accomplish, how it will be carried out, and what it will produce. Applicants should develop their SOW using the Workbook provided, then copy the completed version into this section. Define goals, objectives, and tasks concisely but with enough detail to show clear, logical steps from project purpose to on-the-ground work and deliverables, and ensure that your SOW directly supports the Geospatial Information Plan priority you selected.

Formatting of the SOW is critical. Use the required multilevel list structure provided in the Workbook. If needed, the required formatting can be found within this word document in the *Home Menu Ribbon > Paragraph Section > Multilevel List > List Library*.

Tasks must appear in chronological order, each with a specific completion date. All hardware or equipment purchases must be listed as separate, clearly justified tasks.

40% OF TOTAL SCORE – 4 page-limit

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Goal 1. Maintain the Gallatin Watershed Watercourse Mapping Working Group

Objective 1.1. GWC will facilitate the watercourse mapping working group throughout the life of the grant.

Task 1.1.1. Attend MGIA Grant Training

-Completion Date: 08/10/2026

Task 1.1.2. Stakeholder Working Group Meetings – Bring together core stakeholders, including funding partners for the USGS 3DHP, to guide and advise on all other goals/objectives. The Working Group will meet at least 2x/year.

-Deliverables: Meeting minutes, notes, and agendas

-Completion Date: 05/01/2028

Goal 2. Develop an inventory of Gallatin Watershed Surface Water Data

Objective 2.1. DNRC will develop a table of surface water data in the Gallatin Watershed. The table will be initially developed in Fall 2026 and be updated throughout the life of the grant.

Task 2.1.1. Procure Intern 2026 – Procurement of Big Sky Watershed Corps intern for final 9-weeks of term through Memorandum of Agreement. This will facilitate direct oversight by DNRC staff of the data procurement process.

-Completion Date: 07/15/2026

Task 2.1.2. Equipment Purchase – Purchase laptop, docking station, and field equipment for GIS and field related tasks by DNRC intern.

-Deliverables: Equipment purchase receipts

-Completion Date: 08/01/2026

Task 2.1.3. Identify Data – Work with local partners to inventory existing data.

-Deliverables: list of relevant data and contacts

-Completion Date: 11/10/2026

Goal 3. Prepare Gallatin Watershed surface water data to be published in a publicly accessible format.

Objective 3.1. Prioritize the surface water data compiled in Task 2.1.3 and create a standardized formatting schema.

Task 3.1.1. Procure Intern 2027 – Procurement of Big Sky Watershed Corps intern (or other intern) for 2027 year.

-Completion Date: 01/31/2027

Task 3.1.2. Select final datasets to be included – Consultant will prioritize the list of accumulated data from Task 2.1.3 with input from the Working Group to identify a manageable number of datasets to make publicly accessible.

-Deliverables: Finalized list of data

-Completion Date: 02/15/2027

Task 3.1.3. Acquire datasets – Acquire datasets identified in final list developed in Task 3.1.2

-Deliverables: Revised finalized database, un-formatted

-Completion Date: 07/01/2027

Task 3.1.4. QA/QC datasets – Review and validate datasets, field verification of site locations and validation of hydrology data as deemed necessary. Testing how new or continually updated datasets may be incorporated. Identify data gaps.

-Deliverables: additional data input to database.

-Completion Date: 11/10/2027

Task 3.1.5. Geodatabase SOP – With guidance from the stakeholder working group, develop standard procedures for data formatting including attribute fields, metadata, citations, etc.

-Deliverables: Standard Operating Procedures for data formatting

-Completion Date: 11/10/2027

Task 3.1.6. Format Data – Format data retained in Task 3.1.2 with schema outlined in Task 3.1.4

-Deliverables: Formatted geodatabase with related tables

-Completion Date: 11/10/2027

Task 3.1.7. Explore making data publicly available – Work with external entities to explore options for hosting data accumulated in Task 3.1.6

-Completion Date: 04/15/2028

Goal 4. Linear referencing of formatted data to the 3D Hydrography Database.

Objective 4.1. Create SOP for linking surface water data from Task 3.1.6 to the 3DHP database for the Gallatin.

Task 4.1.1. Learn from other organizations how they have successfully achieved linking hydrology data with 3DHP

-Completion Date: 06/30/2027

Task 4.1.2. Procure Intern 2028 – Procurement of Big Sky Watershed Corps intern (or other intern) for 2028 year.

-Completion Date: 01/31/2028

Task 4.1.3. Use current 3DHP as test dataset – Use existing 3DHP dataset for the Gallatin to test and develop linear referencing schema linking one test dataset from Task 3.1.6 to flowline and/or catchment features by unique id.

-Deliverables: 3DHP dataset linked to surface water data

-Completion Date: 02/15/2028

Task 4.1.4. SOP for linking with 3DHP – Create SOP for linear referencing geodatabase to 3DHP features based on process identified in task 4.1.2

-Deliverables: SOP for linear referencing data to updated 3DHP features as they become available.

-Completion Date: 03/31/2028

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## **SECTION 5 – BUDGET JUSTIFICATION AND BUDGET TABLE**

Use this section to explain your project’s financial need and overall funding plan, including how MGIA funds, your own funds, and any partner contributions will cover the full cost of the work. Briefly state whether this is one-time project work or support for ongoing maintenance, and summarize any matching funds (cash or in-kind) and the approximate share of the total project they represent.

You must also complete Budget Table using the provided Excel spreadsheet. Applications without a completed budget table will be rejected.

30% of total score – 2-page limit

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The grant funding will be utilized to retain the consultant with whom the Water Sciences Bureau will be working on the project. Grant funding will also be used to hire three (3) interns through the life of the grant, retained annually. This includes the final installment of a BSWC intern (07/15/2026 – 11/15/2026), full term of BSWC intern (1/15/2027 – 11/15/2027), and half term of BSWC Member (1/15/2028 – 06/30/2028). Equipment purchased through grant funds is to be utilized by interns to complete project tasks, such as a laptop capable of running GIS software and field equipment such as waders for data verification. Matching funds will be provided by the DNRC Water Resources Division Grant Administrative Specialist and the Water Sciences Bureau staff. Of the overall project budget, the grant represents 50% of the funding (\$41,875.00), with DNRC in-kind funding representing the remaining 50% (\$41,907.95). This is a one-time project with the potential for future grant-funded opportunities to improve accessibility and complete linking hydrology data to the updated 3DHP Gallatin Watershed dataset upon its completion.

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## SECTION 6 – PROJECT SUSTAINABILITY

Use this section to explain how the results of your project will be maintained and used after the grant ends, including who will be responsible, how ongoing costs will be funded, and how the work will fit into your regular operations. Describe how you will coordinate with the Montana State Library on any MSDI data updates and, if you are new to GIS, how this project will help you establish sustainable workflows and build long-term GIS capacity.

10% of score - 300-word limit

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Following the completion of data compilation and successfully demonstrating integration with the existing 3DHP network, DNRC will maintain the resulting geospatial framework as part of its ongoing water resources data management activities. DNRC will be responsible for long-term stewardship of the datasets, including data updates, quality control, and documentation as new information becomes available. This work aligns with DNRC's existing responsibilities for maintaining authoritative geospatial data and supporting statewide water resource planning and analysis.

To ensure data accessibility, DNRC will coordinate with external entities to determine the most appropriate long-term hosting and public-access solution, including potential integration with an existing State Library web service or development of a new service for data discovery and access. All datasets and metadata will be maintained in MSDI-compliant formats to facilitate cross-agency interoperability and future updates.

Ongoing costs associated with data maintenance and updates will be absorbed within DNRC's regular operations and staffing, leveraging existing GIS infrastructure and workflows. The project is designed to be extensible, allowing additional datasets and watersheds to be incorporated incrementally without requiring significant new investment. Future enhancements, such as updating the 3DHP linear referencing, development of a public-facing web portal or advanced visualization tools, may be pursued through subsequent MGIA or related grant opportunities.

The framework developed through this project will be actively used by DNRC to support watershed-scale analyses and decision-making in the Gallatin basin, including the ongoing Gallatin Aquifer and Stream Study (GASS). Water budget modeling results from GASS may be linked to 3DHP in a similar manner based on processes developed with this project as they become available. By embedding the project outputs into routine DNRC workflows and coordinating closely with the Montana State Library, the project will deliver lasting value beyond the grant period and support sustainable, long-term use of MSDI-aligned geospatial data access.

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## SECTION 7 - RENEWABLE GRANT ACCOUNTABILITY

Please use [this web map to research and identify past awarded MGIA Grants](#).

Applicants awarded MGIA Grants within the past five years, must provide a written narrative for each grant awarded, outlining the successes and failures of the grant. Explain how tasks, timelines, and deliverables of the project were or were not met. Demonstrate how past project failures will ensure future successes. (200-word limit each).

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The DNRC Water Resources Division has not applied for or been awarded an MGIA grant within the past five years.

The DNRC Forestry Division in Missoula applied for and was awarded a grant for \$20,000 for the Coal Creek State Forest – PLSS Data Collection State Fiscal Year 2022 project. The project initially experienced staff changes impacting the execution of the project. Once appropriate staff was in place, the grant agreement had utilized all available extensions. Unfortunately, the project could not be completed. No funds were expended.

**DNRC**

**MGIA GRANT DETAILED BUDGET TABLE**

<b>Tasks</b>	<b>Category Type</b>	<b>Funding Source</b>	<b>Hours</b>	<b>Rate</b>	<b>Cost</b>
Task 1.1.1 - Attend MGIA Grant Training	Travel	DNRC In-Kind	10	\$ 48.72	\$ 487.20
Task 1.1.2 - Stakeholder Working Group Meetings	Contractual	MGIA Grant Funds	80	\$ 57.00	\$ 4,560.00
Task 1.1.2 - Attend Stakeholder Working Group Meetings	Personnel (incl. fringe benefits)	DNRC In-Kind	30	\$ 48.72	\$ 1,461.60
Task 2.1.1 - Procure Intern for remainder 2026	Contractual	MGIA Grant Funds			\$ 3,400.00
Task 2.1.2 - Equipment Purchase (laptop computer, docking station, misc. field equipment)	Supplies & Materials	MGIA Grant Funds			\$ 3,000.00
Task 2.1.3 - Data identification	Contractual	MGIA Grant Funds	40	\$ 57.00	\$ 2,280.00
Task 2.1.3 - Intern Supervision (Data Identification)	Personnel (incl. fringe benefits)	DNRC In-Kind	20	\$ 48.72	\$ 974.40
Task 3.1.1 - Procure Intern 2027	Contractual	MGIA Grant Funds			\$ 17,000.00
Task 3.1.2 - Select final datasets with working group input	Contractual	MGIA Grant Funds	25	\$ 57.00	\$ 1,425.00
Task 3.1.4 - QA/QC data including field verification	Personnel (incl. fringe benefits)	DNRC In-Kind	420	\$ 48.72	\$ 20,462.40
Task 3.1.4 - QA/QC data including field verification	Personnel (incl. fringe benefits)	DNRC In-Kind	200	\$ 42.38	\$ 8,476.00
Task 3.1.5 - Develop SOP for data formatting with working group	Contractual	MGIA Grant Funds	30	\$ 57.00	\$ 1,710.00
Task 3.1.5 - QA/QC SOP	Personnel (incl. fringe benefits)	DNRC In-Kind	10	\$ 48.72	\$ 487.20
Task 3.1.6 - QA/QC geodatabase formatting by dedicated intern	Personnel (incl. fringe benefits)	DNRC In-Kind	40	\$ 48.72	\$ 1,948.80
Task 3.1.7 - Explore making data publicly available	Personnel (incl. fringe benefits)	DNRC In-Kind	30	\$ 48.72	\$ 1,461.60
Task 4.1.1 - Meet with other agencies regarding data association	Personnel (incl. fringe benefits)	DNRC In-Kind	20	\$ 48.72	\$ 974.40
Task 4.1.2 - Procure Intern 2028 (half of BSWC cost)	Contractual	MGIA Grant Funds			\$ 8,500.00
Task 4.1.3 - Link Dataset to 3DHP	Personnel (incl. fringe benefits)	DNRC In-Kind	40	\$ 48.72	\$ 1,948.80
Task 4.1.4 - SOP for linking data to 3DHP	Personnel (incl. fringe benefits)	DNRC In-Kind	40	\$ 48.72	\$ 1,948.80
Misc. - Administrative Costs	Personnel (incl. fringe benefits)	DNRC In-Kind	25	\$ 51.07	\$ 1,276.75
		<b>Totals:</b>	1060	<del> </del>	\$ 83,782.95

STATE OF MONTANA  <h1 style="margin: 0;">VENDOR INVOICE</h1>	
<b>VENDOR'S NAME AND ADDRESS</b> Dept. of Natural Resources and Conservation - Water Sciences Bureau PO Box 201601 Helena, MT 59620-1601	<b>BILLED TO</b>  Montana State Library 1201 11th Avenue Helena, MT 59601  Attn Grant Manager: _____

PROJECT INFORMATION:				
Grant Agreement Number:		Project Title:	Develop Gallatin Watershed Hydrology Data for 3DHP	
Period of Performance:		Reimbursement Request Number:		
DESCRIPTION OF GOODS DELIVERED OR SERVICES RENDERED:				
Name of Business/Vendor	Invoice Number	Dates of Service/ Invoice Date	Budget Category / Task Number and Description	Amount
<b>GRAND TOTAL</b>				<b>\$0.00</b>

<i>In signing below, I certify that this invoice is correct in all respects and that payment has not been received.</i>			
Recipient Authorized Official Name		Title	
Recipient Authorized Official Signature		Date Processed	