

# Montana CTP Program Management Business Plan



**2024**



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Introduction

The State of Montana Floodplain Mapping Program Business Plan for 2024 – 2025 has been prepared to support the Program Management Grant Statement of Work. In accordance with FEMA guidance, this Business Plan highlights our Program’s overall capabilities and accomplishments, as well as our vision for the future. This Business Plan discusses completed and ongoing projects, including future mapping priorities as a part of a multi-year flood hazard mapping plan for Montana.

Section 1.1: Goals

Montana DNRC has been a Cooperating Technical Partner (CTP) since 2005. Our CTP initiated the first Map Modernization projects in the state and since that time has cooperatively worked with FEMA to scope, plan, manage, and complete multiple Map Modernization and Risk Map projects.

Our program is continually working to expand our capabilities as a CTP. We see ourselves as an integral partner with FEMA in effectively delivering flood-risk information to local Montana communities and building local capacity to mitigate flood risk.

## *Vision*

The philosophy of our team is one of *Innovation and Continual Improvement*. Together we strive to strengthen and enhance every aspect of our Floodplain Mapping Program, from regular communication with floodplain administrators and local officials during the Risk MAP process to concurrent technical reviews of task submittals. This philosophy and vision guide our work as an effective team with a proven record of success.

The Montana Floodplain Mapping Program strives to mirror the overall vision of FEMA's mapping program through every step of a mapping project's lifespan. In conjunction with FEMA's paper inventory reduction, we have identified and listed what remains of Montana's paper inventory. Our goal over the next several years is to complete all these projects, making Montana a completely digital state.

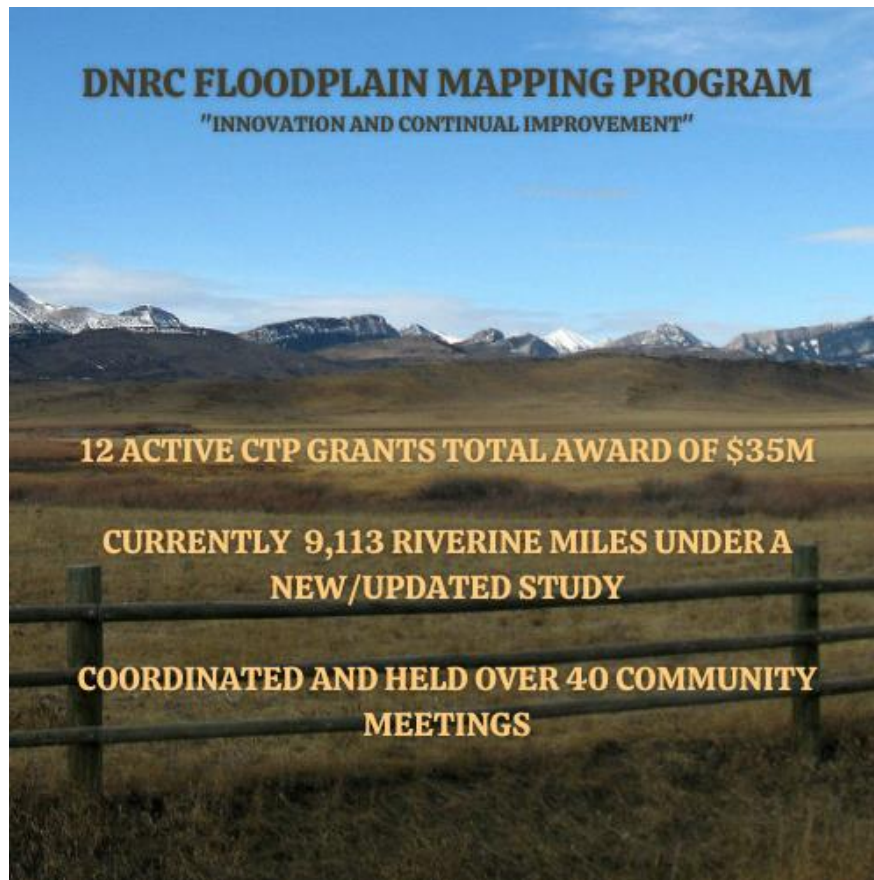
As part of this approach, our Program's vision includes:

- Identifying flood risk and minimizing future flood-related damages by **building community resiliency**.
- Identifying opportunities for flood mitigation projects and working constructively with communities to encourage mitigation efforts.
- Undertaking new floodplain mapping projects in cooperation with stakeholders and mapping partners in communities and watersheds where new or updated floodplain information is a priority and there is **strong community support**.
- Providing practical, understandable flood-risk tools to communities in Montana.
- Providing information and technical support to help communities with their mapping and mitigation needs.
- Developing **technically credible** flood hazard mapping products.
- Providing accessible, model-backed data for all the effective floodplain mapping in the state. This includes evaluating and updating effective studies that were converted to digital format during MapMod and RiskMAP projects, but the actual studies and mapping were not updated.
- Working with state and federal partners to achieve statewide LiDAR acquisition.
- Reducing our state's inventory of paper-based floodplain maps, and eventually **achieving statewide modernization** of all our floodplain maps.



## Section 1.2: Key Partners & Contractors

Montana is fortunate to have many community officials that understand the importance of identifying and communicating flood risk in the state. In accordance with Montana’s Floodplain and Floodway Management Act, the DNRC is tasked with establishing a comprehensive statewide floodplain mapping program to delineate designated floodplains and floodways (MCA 76-5-101). We accomplish this through several approaches.



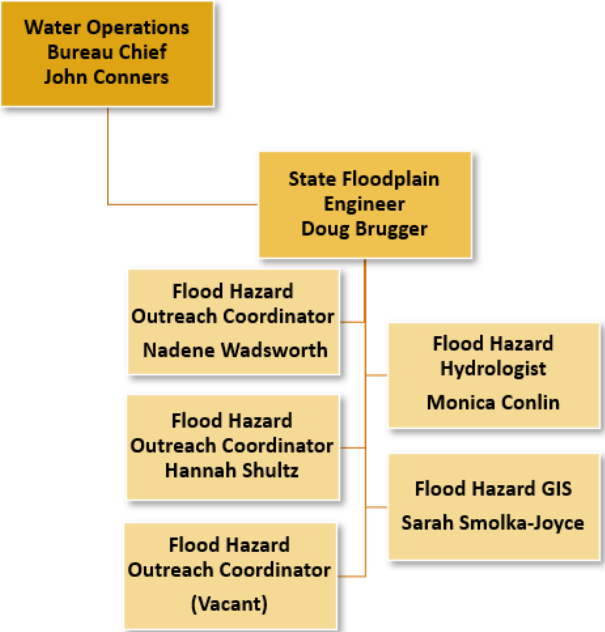
- **Collaboration** with federal, state, local partners, and stakeholders.
- Six state-funded regional engineers stationed throughout the state that provide technical assistance and support for floodplain mapping projects.
- Continual improvement to expand our capabilities as a Cooperating Technical Partner.
- Collaboration with contractors and other partners to develop **innovative technologies** and techniques.

Bi-Annually DNRC solicits proposals from contractors to conduct flood studies for the Risk MAP program. Below are the some of the contractors that were pre-qualified as 2022. DNRC will be conducting the RFQ process summer of 2024.

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AECOM	Allied Engineering	Confluence Consulting Inc.	DOWL	Great West Engineering	Heberly & Associates
KF2 Consulting	Michael Baker International	Morrison Maierle Inc	Pioneer Technical Services	RESPEC	Wood

## DNRC Mapping Staff



Montana’s Floodplain Mapping Unit Team currently consists of six staff that support flood map production and RiskMAP activities in Montana. The Water Operations Bureau Chief and State Floodplain Engineer are funded through the State of Montana; all other positions are funded through the PM grant. Our team works with other state programs such as Disaster and Emergency Services, the Montana Silver Jackets Program, the DNRC Community Assistance Program, Montana Department of Environmental Quality, and the Montana Department of Transportation to plan and conduct flood hazard mapping activities, based on local and state priority needs.

Our team brings the following capabilities in support of FEMA’s mapping process:

- **Extensive staff knowledge** and experience in a wide range of subjects and responsibilities
- Oversight and administration of contracts.
- Technical review and evaluation of mapping submittals
- Application of FEMA’s mapping guidelines and standards
- Development of **Montana specific mapping guidelines** and best practices
- Development of Montana specific outreach materials

## Section 1.3: Strategy

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Montana DNRC’s Floodplain Mapping Program strives to assist local communities with mapping needs. Our team leverages funding resources at the state, and federal levels to conduct new mapping projects, and assist communities with identifying and **reducing flood risk**. We do this by reaching out, building trust, and fostering relationships with elected officials and stakeholders. We can effectively research, plan, and lay the groundwork for future projects.

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Our approach has always been to coordinate with communities well in advance of a flood study. We meet with community elected officials and stakeholders ahead of time to assess their interests and needs, gather relevant information, and data. We frequently collaborate with our Community Assistance Program (CAP) when they conduct community visits. Part of the community assistance visits is to find any gaps in data and resources as well as establish any unmet mapping needs. As a result, we can garner local support for these projects ahead of time, as evidenced by the letters of support that we ask our communities to provide.

In the past we have taken a phased approach for projects and have been successful in completing them. **Figure 1** (section 1.5) gives an overview of our multi-year project planning.

These projects address local, state, and federal mapping priorities for Montana. Included in each of the following sections is documentation of how these projects will contribute to: NVUE targets, Paper Inventory Reduction, and Base Level Engineering.

***New, Validated or Updated Engineering (NVUE)***

To continue to improve the NVUE metrics for the State of Montana, DNRC will try and ensure all the mapping projects in the Multi-Year Plan will contribute to updating currently unverified or unknown miles in the Coordinated Needs Management Strategy (CNMS) database. **Table 1** outlines the next 5 years for anticipated miles to be updated and the current CNMS miles.

**Table 1: CNMS table FY 24-29**

*Project Name	County	Miles anticipated to be updated with RiskMAP projects	Currently Unverified/ Unknown Miles (from CNMS)
FFY 2024			
Lincoln County Modernization Phase I Discovery/ BLE	Lincoln	884.9	867.0
Milk River Phase III	Hill Blaine Phillips Valley	Miles accounted for in Phase I	
<b>TOTAL</b>	--	<b>884.9</b>	<b>867.0</b>
FFY 2025			
Upper Clark Fork Phase I Discovery/ BLE	Butte Silverbow Anaconda Deer Lodge	344.9	296.2
Upper Yellowstone Phase III	Stillwater Park	Miles accounted for in Phase I	
<b>TOTAL</b>	--	<b>344.9</b>	<b>296.2</b>
FFY 2026			

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Lincoln County Modernization Phase II	Lincoln	Miles will be updated after Phase I	
<b>TOTAL</b>	--	<b>Miles will be updated after Phase I is complete</b>	
<b>FFY 2027</b>			
Gallatin PMR (Hyalite Creek, East Gallatin River)	Gallatin	194.8	155.6
Broadwater County PMR	Broadwater	81.1	80.2
<b>TOTAL</b>	--	<b>275.9</b>	<b>235.8</b>
<b>FFY 2028</b>			
Upper Clark Fork Phase II	Butte Silverbow Anaconda Deer Lodge	Miles will be updated after Phase I	
Eastern Montana Phase I Discovery BLE	Roosevelt, Custer, McCone/Circle, Wibaux	714.1	541
<b>TOTAL</b>	--	<b>714.1</b>	<b>541</b>
<b>FFY 2029</b>			
Ravalli Countywide	Ravalli	139.8	70.7
<b>TOTAL</b>	--	<b>139.8</b>	<b>70.7</b>

All projects proposed are dependent on funding availability, DNRC capacity, community requests and support, and community needs. Proposed projects can change from year-to-year with business plan updates.

## *Paper Inventory Reduction*

Modernization of existing paper flood maps is an ongoing priority for Montana DNRC. Since the initiation of the MapMod program in 2005, our Floodplain Mapping program has worked with FEMA to modernize 23 counties in Montana, as shown in **Figure 2**. Counties that are currently in progress to complete modernization through the RiskMAP program, include, Madison, Jefferson, Hill, Phillips, Valley, Teton, Powell, Big Horn, Treasure, Rosebud, Dawson, Fallon, and Powder River Counties.

The mapping projects identified in the Multi-Year Mapping Plan have been ranked and prioritized. These projects continue to lay the groundwork to fully modernize the remaining counties in the state.

## *Base Level Engineering*

### Conducted during Discovery

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The Base Level Engineering production approach combines high-resolution ground elevation data, and modeling technology advancements to create engineering models and flood hazard data. These analyses are produced at a large scale, like a watershed, as opposed to targeting individual stream reaches. The flood hazard information prepared is based off engineering models that determine flood elevations along each stream reach studied. The data prepared provides flood hazard information to community officials and allows them to interact with analysis results and review areas identified as prone to flooding. The DNRC will update all BLE products developed during Discovery with a regulatory flood map. BLE data will be used as supplemental information while the community is waiting on an updated flood study.

### **Regulatory Map Update**

Montana's Floodplain Mapping Program is using Base Level Engineering (BLE) techniques for several RiskMAP projects. BLE is being used for portions of two RiskMAP projects in Montana that are currently in flight: Jefferson County, the Milk River project (Hill, Blaine, Phillips, and Valley Counties), BTR project (Big Horn, Treasure, and Rosebud Counties) and the DFPR project (Dawson, Fallon, and Powder River Counties). Montana's use of BLE in future countywide projects with significant miles of approximate mapping, or where DFIRM projects did not include updated flood studies, including Anaconda-Deer Lodge, Lincoln, Dawson, Fallon, Park, Cascade, Sanders, and Glacier Counties.

### ***Addressing equity and climate change***

Most of the remaining paper inventory across the state are in communities with lower populations and a higher flood risk due to levees, aging population, and distance. Montana is over 147,000 square miles and is ranked 43<sup>rd</sup> for populated states in the nation. Montana comes with a unique challenge to address when managing flood risk and disasters due to distance to resources. Empowering communities with accurate up to date flood risk information allows them to manage and mitigate future flood risk.

Providing updated data and tools to our communities to help guide development and growth is how Montana is building resilience and addressing equity. In most counties and towns in Montana the floodplain program is the one of the only regulatory programs and the only way to ensure residents are building safe and smart.

The DNRC Mapping Program follows FEMA/State standards which does not evaluate Future Conditions such as climate change. To evaluate climate change, scientific trends analyses are necessary, which have yet to be completed for Montana.

### ***Statewide Flood Hazard Viewer***

DNRC has recently developed a statewide flood hazard viewer for all active Risk MAP projects, which serves as an outreach tool for effective communication with stakeholders. The statewide viewer hosts draft/preliminary, effective, CSLF, Depth Grids, and LAG data for all active projects. As part effective mapping, it includes digitized data for several counties with paper maps. We are currently working on expanding the capabilities with two pilot projects outlined in the COMs SOW.

Montana DNRC will be working with a state-approved contractor to develop a statewide building footprints dataset under a cohesive schema. We are currently lacking this capability as our various building footprint datasets were developed under different schemas by different contractors for individual projects. This combined dataset will supplement our statewide Flood Risk Map viewer. The statewide



building footprints dataset will allow us to answer important questions that these stakeholders often have, such as how many structures are in the floodplain and floodway statewide.

Visualization of historic flooding extents is another valuable tool for communicating with stakeholders and new mapping communities that we also plan to incorporate into our statewide Flood Risk Map viewer. Montana DNRC will work with a state-approved contractor, who will conduct the necessary flood history research and use this information to develop spatial layers representing the historic flooding extents. We plan to examine the years 1964, 2011, and 2018, which all had significant flooding events. The Historic Flooding Dataset will allow us to effectively communicate the impact past flooding events, which can be forgotten as time passes.

DNRC will also be including BLE data that will meet FFRD guidelines. These data sets will be included in the statewide viewer.

Developing a flood risk viewer that can support all communities statewide is the final goal. Ultimately, these projects will help communities with limited to no GIS capabilities at the local level administer their floodplain management programs.

## *Community Capacity Building*

Hard copies of FIRMs, and the FISs are no longer provided to communities who undergo new flood studies. Communities across Montana need hard copies to assist managing local flood risk. Not all communities across Montana have the capabilities to just have electronic versions of FIRMs and FISs. Having hard copies is also a state law requirement (MCA 76-5-202(4)) and a requirement of participating in the NFIP. Recognizing this need, MT DNRC would like to establish a printing service for communities in need of hard copies of FIRMs and FISs who have undergone new flood studies. DNRC will provide 1 copy of FIRMs and FIS to each participating community.

Along with providing hard copies of maps and study information to communities, there is a need to conduct workshops to help residents and community officials find flood study data online and how to read floodplain maps. DNRC would like to hold workshops around the state to support this effort. We will hold two workshops annually to support this effort.

## *Outreach Support During Flood Studies*

Montana DNRC's Floodplain Mapping Program strives to assist local communities with their floodplain mapping needs. We provide support in identifying, and mapping current flood risks, and providing tools to help communities reduce their flood risks and build community resiliency. This is achieved through comprehensive planning, effective outreach, and communication from DNRC mapping and community assistance staff. The outreach and communication provided by DNRC through floodplain mapping projects and for communities are well established with a myriad of tools and resources available for the community. Outreach efforts are outlined in the DNRC outreach plan which is a supplemental document to this plan.

***Community Resilience and Mitigation Support (Mitigation Technical Assistance Program)***

To ensure DNRC is providing support to communities that are interested in reducing their flood risk through mitigation activities, the DNRC Floodplain Program has developed a Mitigation Technical Assistance program to support communities who are in the process of receiving flood risk updates through the floodplain mapping process. This program will provide a community with mitigation alternatives to assist in building community resiliency. Please see Appendix B for more information on the Mitigation Program.

Along with the Technical Assistance Program DNRC will also support community efforts to update local mitigation plan updates.

Hazard impacts, mitigation capabilities, and mitigation goals and objectives may change over time. Communities may need to identify new mitigation actions. Mitigation actions can come from a variety of different sources, like members of the planning team, stakeholders, or other state risk reduction efforts. DNRC staff can help support communities planning effort updates.

**Section 1.4: Active Projects**

Our program is heavily involved in all aspects of these mapping projects including in-house discovery, contractor selection and contract management, project management and technical reviews of survey, hydrology, hydraulic, and mapping submittals, coordinating public and elected official’s meetings and communication, and coordinating landowner and media outreach efforts.

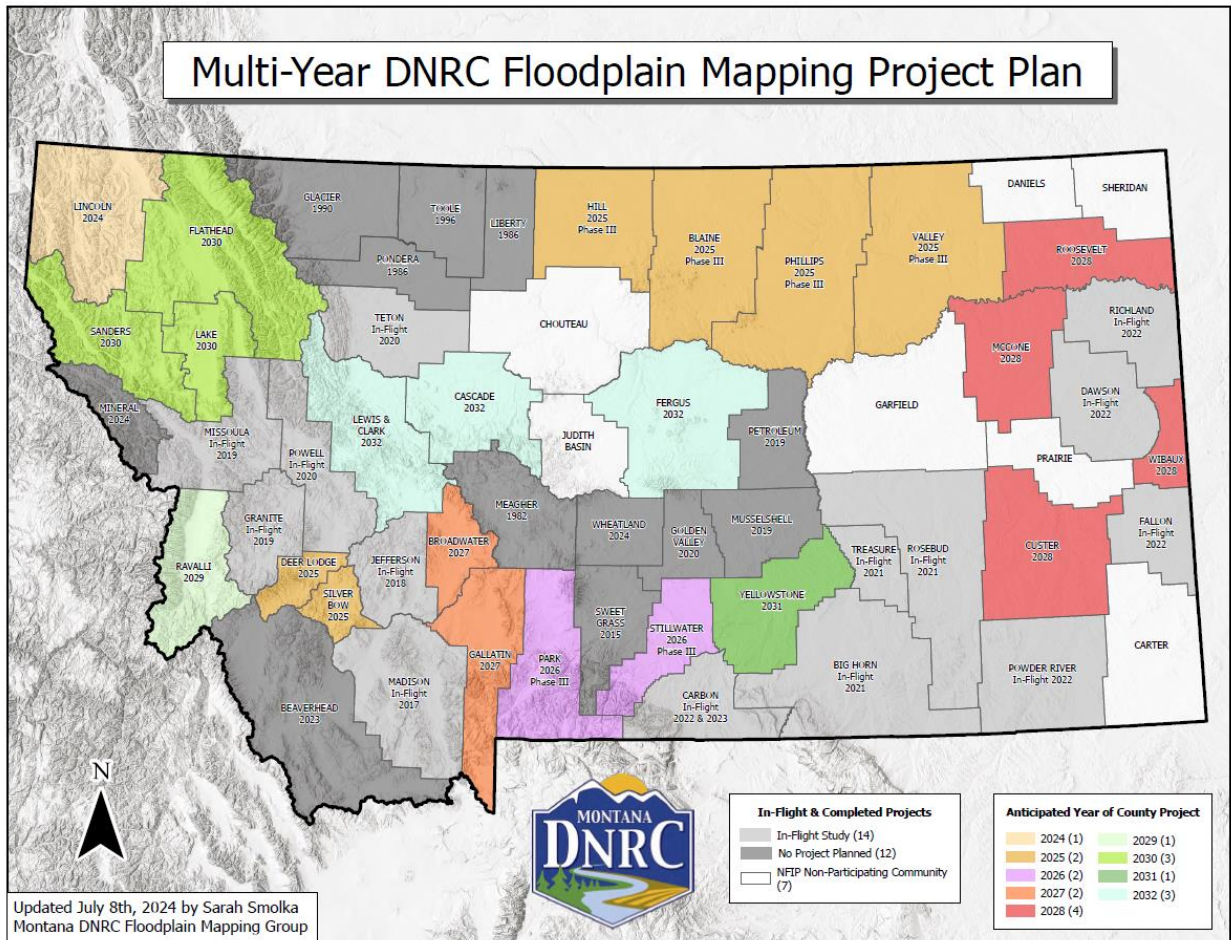
Project/ County		2024	2025	2026	2027
Upper Musselshell River Watershed		Effective 3/13/2024			
Mineral Countywide		Effective 4/25/2024			
Madison Jefferson Ruby Watershed	Broadwater County	LFD 3/26/2024			
	Madison County	LFD Summer 2024			
	Gallatin County	DFIRM Database; Produce & Distribute Preliminary Products		Post-Preliminary Processing	
Project/ County		2024	2025	2026	2027
Jefferson Countywide		DFIRM Database; Produce & Distribute Preliminary Products		Post-Preliminary Processing	
Missoula/ Granite PMR	Missoula County	DFIRM Database; Produce & Distribute Preliminary Products		Post-Preliminary Processing	

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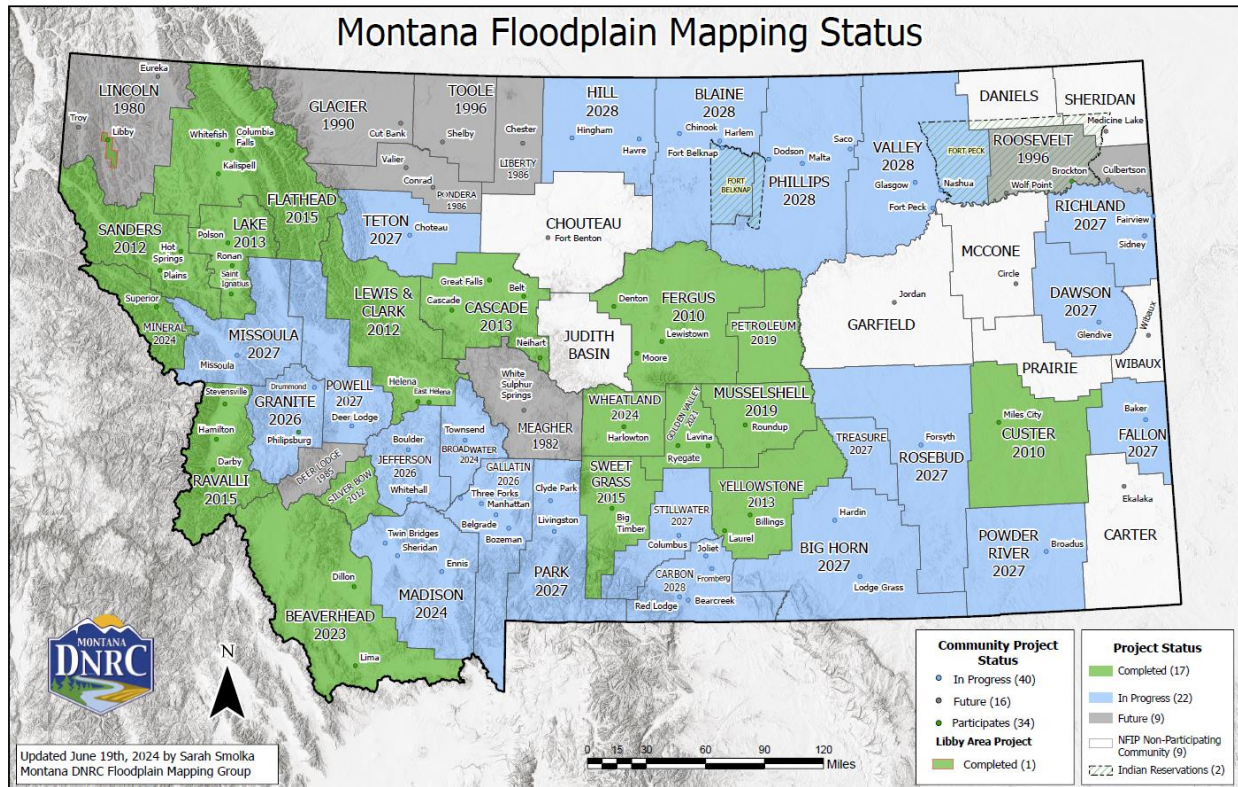
	Granite County	Post-Preliminary Processing		
Powell Countywide		DFIRM Database; Produce & Distribute Preliminary Products		Post-Preliminary Processing
Teton Countywide		DFIRM Database; Produce & Distribute Preliminary Products		Post-Preliminary Processing
Milk River Watershed	Hill County	Hydraulics	Floodplain Mapping	DFIRM Database; Produce &
	Blaine County	Hydraulics	Floodplain Mapping	DFIRM Database; Produce &
	Phillips County	Hydraulics	Floodplain Mapping	DFIRM Database; Produce &
	Valley County	Hydraulics	Floodplain Mapping	DFIRM Database; Produce &
Big Horn Treasure Rosebud Counties	Big Horn County	Hydraulics	Floodplain Mapping	DFIRM Database; Produce & Distribute Preliminary Products
	Treasure County	Hydraulics	Floodplain Mapping	DFIRM Database; Produce & Distribute Preliminary Products
	Rosebud County	Hydraulics	Floodplain Mapping	DFIRM Database; Produce & Distribute Preliminary Products
Dawson Fallon Powder River Counties	Dawson County	Hydraulics	Floodplain Mapping	DFIRM Database; Produce & Distribute Preliminary Products
	Fallon County	Hydraulics	Floodplain Mapping	DFIRM Database; Produce & Distribute Preliminary Products
	Powder River County	Hydraulics	Floodplain Mapping	DFIRM Database; Produce & Distribute Preliminary Products
Richland County PMR		Hydraulics	Floodplain Mapping	DFIRM Database; Produce & Distribute Preliminary Products
Upper Yellowstone Phase I & II	Park County	LiDAR Field Survey Hydrology	Hydraulics	Floodplain Mapping
	Stillwater County	LiDAR Field Survey Hydrology	Hydraulics	Floodplain Mapping
	Carbon County	LiDAR Field Survey Hydrology Hydraulics	Floodplain Mapping	DFIRM Database; Produce & Distribute Preliminary Products

Section 1.5: Maps and Supporting Materials

Figure 1: Multi-Year Mapping Project Plan



**Figure 2: Status of Paper vs. DFIRM Communities in Montana**



## Conclusion

The Montana Floodplain Mapping Program is continually working to expand our capabilities as a Cooperating Technical Partner. We see ourselves as an integral partner with FEMA in effectively delivering flood-risk information to local Montana communities and building local capacity to mitigate flood risk. Together with FEMA, our Program is well positioned to help build additional capacity within Montana’s communities.

We are grateful for FEMA’s past and continued support of the Montana Floodplain Mapping Program; indeed, we share many of our Program’s successes with the dedicated staff at FEMA Region VIII. We look forward to a bright future with FEMA, continuing to increase local awareness and understanding of

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flood hazard and provide risk information to help communities undertake actions to mitigate flood risks. Together we can help map and mitigate flood risks in Montana.