

# Granite County Town of Drummond public open house

October 3, 2023

- Agenda:
  - What are floodplain maps and why are they important
  - Existing community floodplain maps
  - Current project
  - Questions & Discussion
  - Development and Regulations
  - Next steps
  - One-on-one sessions

# PROJECT PARTNERS

Granite County &  
Town of Drummond



City of Missoula & Missoula County



Department of Natural  
Resources and Conservation



Federal Emergency  
Management Agency



FEMA

## DNRC Contractors:

Topography/LiDAR – Quantum Spatial



Survey Work– Bathymetric survey-DOWL



Structure Survey- Pioneer technical

Hydrology- USGS



and Pioneer Technical



Hydraulic Analysis and Floodplain Mapping

Morrison & Maierle – Allied Engineering

Rock Creek



Bitterroot

Clark Fork



# IDENTIFYING RISK THROUGH MAPPING



2011 Flooding

## Floodplain Maps Flood Insurance Rate Maps (FIRMs)

Used for various purposes

- Local floodplain regulations
- Local planning (growth and development)
- Emergency Managers
- Sanitarians
- Mortgage companies
- Flood Insurance Premiums

Need updating

- New data available
- Change in the area

# GRANITE COUNTY FLOODPLAIN MAPS

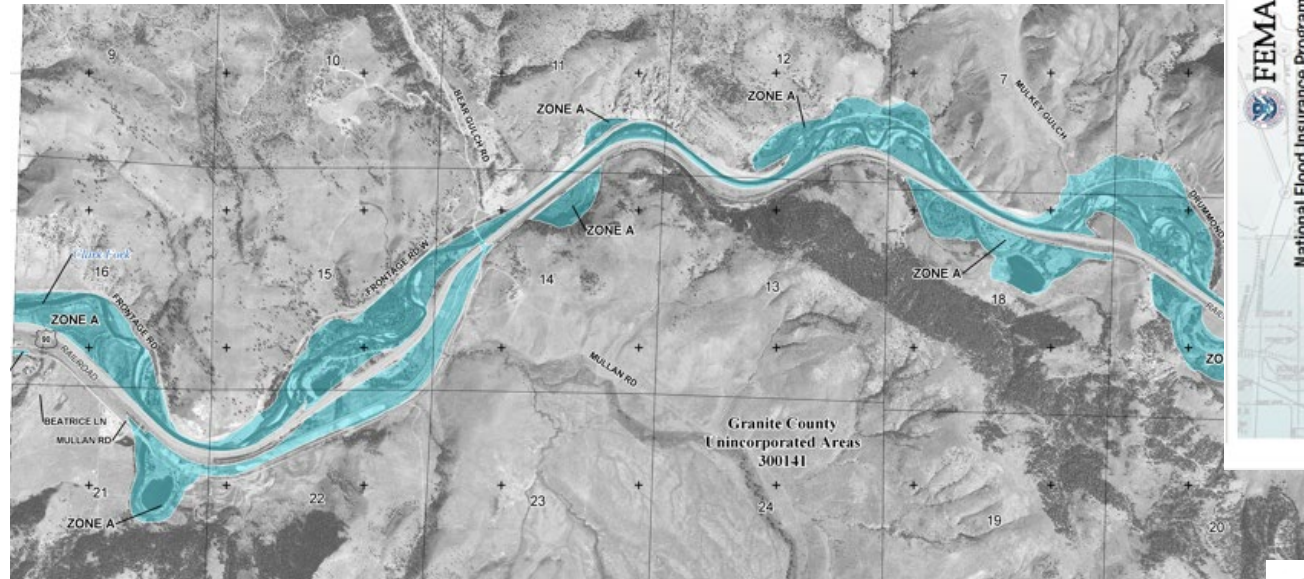
## Study information

### Clark Fork River

- Study conducted in 1979

### Rock Creek

- Study conducted in 1975
- Used aerial photographs from 1972 flooding to determine the floodplain



**FEMA**  
National Flood Insurance Program

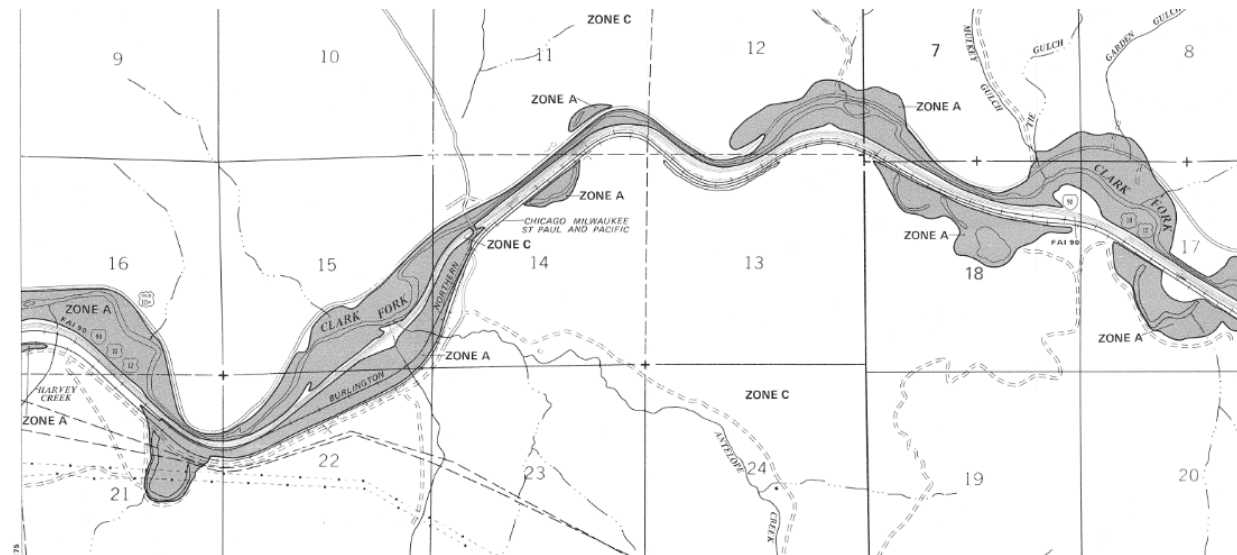
NATIONAL FLOOD INSURANCE PROGRAM  
FLOOD INSURANCE RATE MAP

GRANITE COUNTY, MONTANA  
(UNINCORPORATED AREAS)

Panel: 200 of 1200

COMMUNITY	NUMBER	PANEL	SUFFIX
GRANITE COUNTY	30040	0200	C

VERSION NUMBER: 2.2.2.1  
MAP NUMBER: 30039C0200C  
EFFECTIVE DATE: April 19, 2016



NATIONAL FLOOD INSURANCE PROGRAM

**FIRM**  
FLOOD INSURANCE RATE MAP

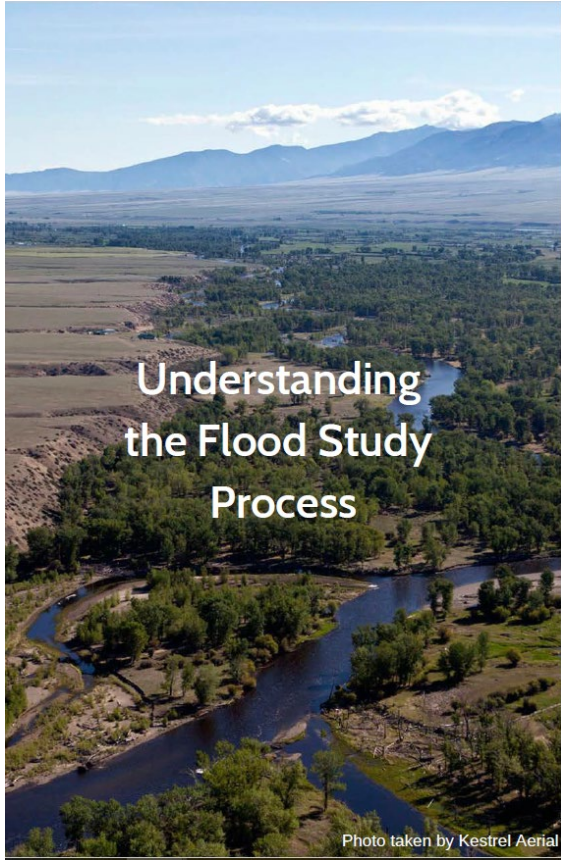
GRANITE COUNTY,  
MONTANA  
(UNINCORPORATED AREAS)

PANEL 200 OF 1150  
SEE MAP INDEX FOR PANELS NOT PRINTED

COMMUNITY-PANEL NUMBER  
300141 0200 A

EFFECTIVE DATE:  
JULY 5, 1982

Federal Emergency Management Agency



## Flood Study Steps

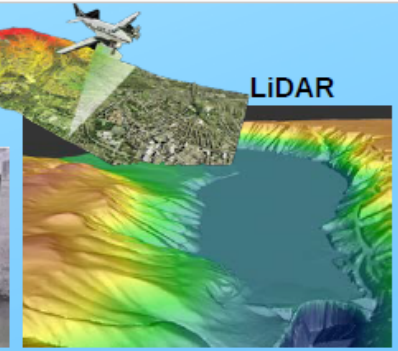
**Step 1 - Survey:** measurements are made of the topography around the river, along with any culverts, bridges, and road crossings. LiDAR uses an airplane to collect ground elevation over a large area, and ground survey supplements the airborne data.

**Step 2 - Hydrology:** determines how much water there will be in the river during a flood event. Data from stream gages will tell how many cubic feet of water per second the river will carry during the flood.

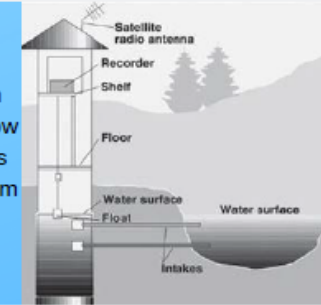
**Step 3 - Hydraulics:** once the first two steps are complete, calculations can show where the water will go during the flood. The elevation data is combined with the flood flow data to determine where the water will go when it overflows the channel.

**Step 4 - Mapping (delineation):** the results from step 3 are combined with the elevation data and official maps to see how far the water will spread out. The area shown to be underwater during the flood is the regulatory floodplain.

**Step 1 - Survey:** The type of the survey depends on the size of the study area and type of study.

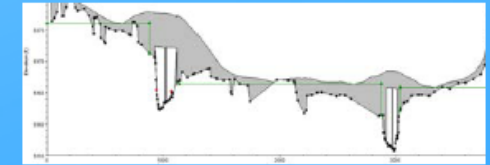
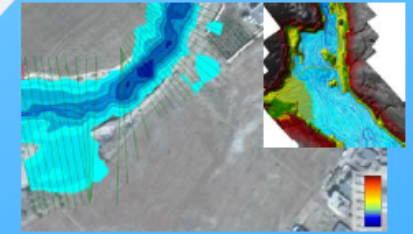


**Step 2 - Hydrology:** Stream gage stations are an important tool to determine flow rates. If nearby stream gages aren't available, gage data from a similar location is used to determine the flow rate.



**Step 3 - Hydraulics:**

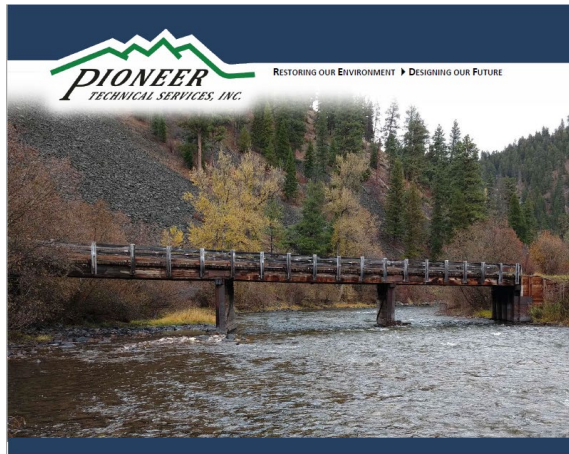
- 5 main components to the model
- 1) Hydrology (stream flow data)
- 2) Cross Sections (measurements of the river bottom at key locations)
- 3) Roughness (thickness of vegetation, land cover, etc determined by surveyors)
- 4) Structures (road crossings, culverts, bridges, etc.)
- 5) Downstream conditions



**Step 4 - Mapping (delineation):**

The result will be the floodplain boundary and a depth grid identifying the shallower and deeper areas of flooding.






**PIONEER**  
TECHNICAL SERVICES, INC. RESTORING OUR ENVIRONMENT ▶ DESIGNING OUR FUTURE

**Missoula-Granite PMR, MAS No. 2019-02  
Structure Survey Report**

Montana Department of Natural Resources and Conservation (DNRC)  
May 27, 2020

Pioneer Technical Services, Inc. 106 Pronghorn Trail, Bozeman Montana 59718  
[www.pioneer-technical.com](http://www.pioneer-technical.com)




**PIONEER**  
TECHNICAL SERVICES, INC. RESTORING OUR ENVIRONMENT ▶ DESIGNING OUR FUTURE

Missoula-Granite PMR, MAS No. 2019-02  
**Missoula and Granite Counties, Montana  
Hydrologic Analysis Report**


Montana DNRC  
July 9, 2020

Pioneer Technical Services, Inc. 106 Pronghorn Trail, Bozeman Montana 59718  
[www.pioneer-technical.com](http://www.pioneer-technical.com)



**Hydraulic Analysis and Floodplain Mapping Report**

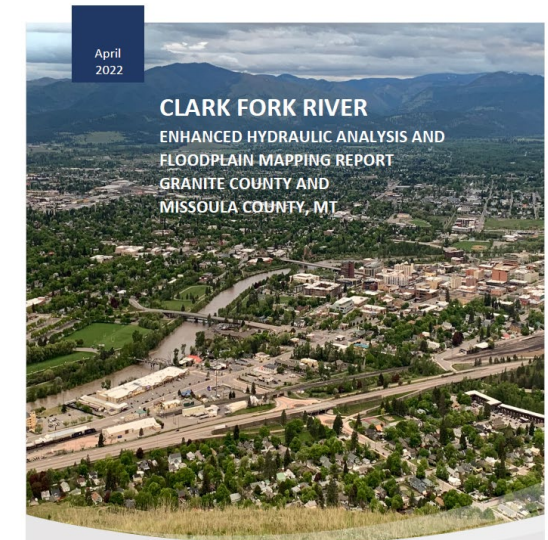

Rock Creek and Tributaries Floodplain Study  
Missoula and Granite Counties, MT



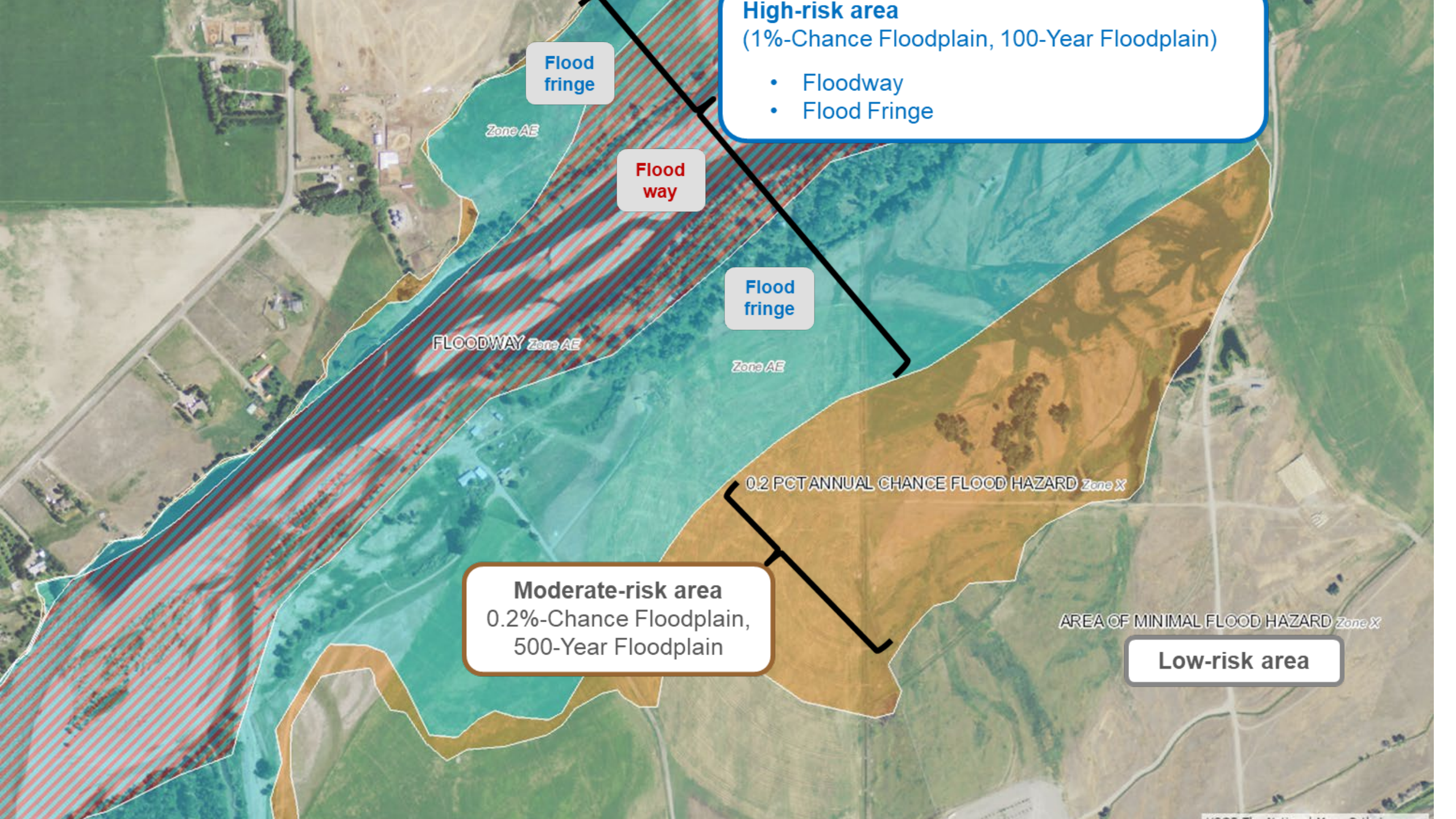
Contract Number: WO-MM-200  
Mapping Activity Statement No. 2019-02

April  
2022

**CLARK FORK RIVER**  
ENHANCED HYDRAULIC ANALYSIS AND  
FLOODPLAIN MAPPING REPORT  
GRANITE COUNTY AND  
MISSOULA COUNTY, MT

PROJECT #19-128



**High-risk area**  
(1%-Chance Floodplain, 100-Year Floodplain)

- Floodway
- Flood Fringe

Flood fringe

Flood way

Flood fringe

**Moderate-risk area**  
0.2%-Chance Floodplain,  
500-Year Floodplain

**Low-risk area**

Zone AE

FLOODWAY Zone AE

Zone AE

0.2 PCT ANNUAL CHANCE FLOOD HAZARD Zone X

AREA OF MINIMAL FLOOD HAZARD Zone X



# Preliminary FEMA Floodplain Maps & Study

## FLOOD INSURANCE STUDY FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 5



### GRANITE COUNTY, MONTANA AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
DRUMMOND, TOWN OF	300033
GRANITE COUNTY, UNINCORPORATED AREAS	300141
PHILIPSBURG, TOWN OF	300117

**PRELIMINARY**  
5/24/2023



# FEMA

**REVISED:**  
TBD

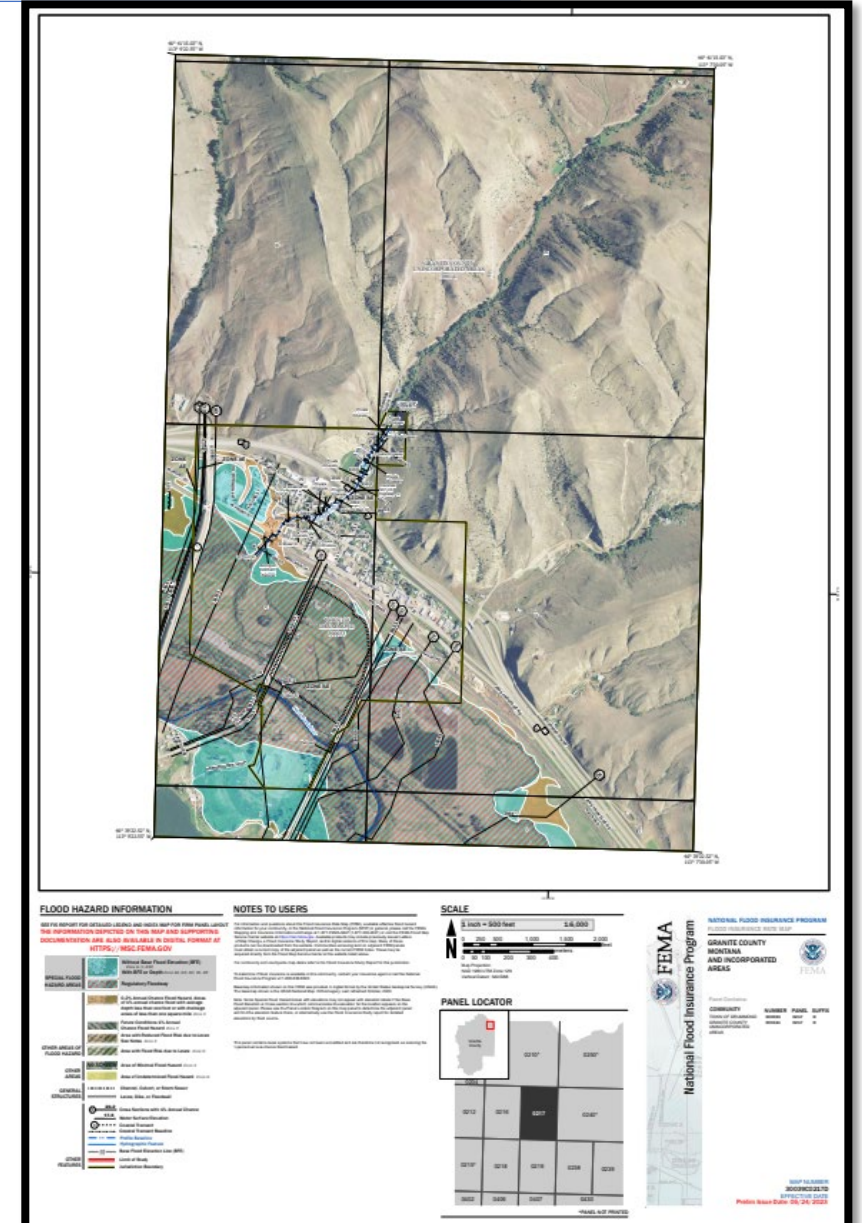
FLOOD INSURANCE STUDY NUMBER  
30039CV001B  
Version Number 2.8.5.6

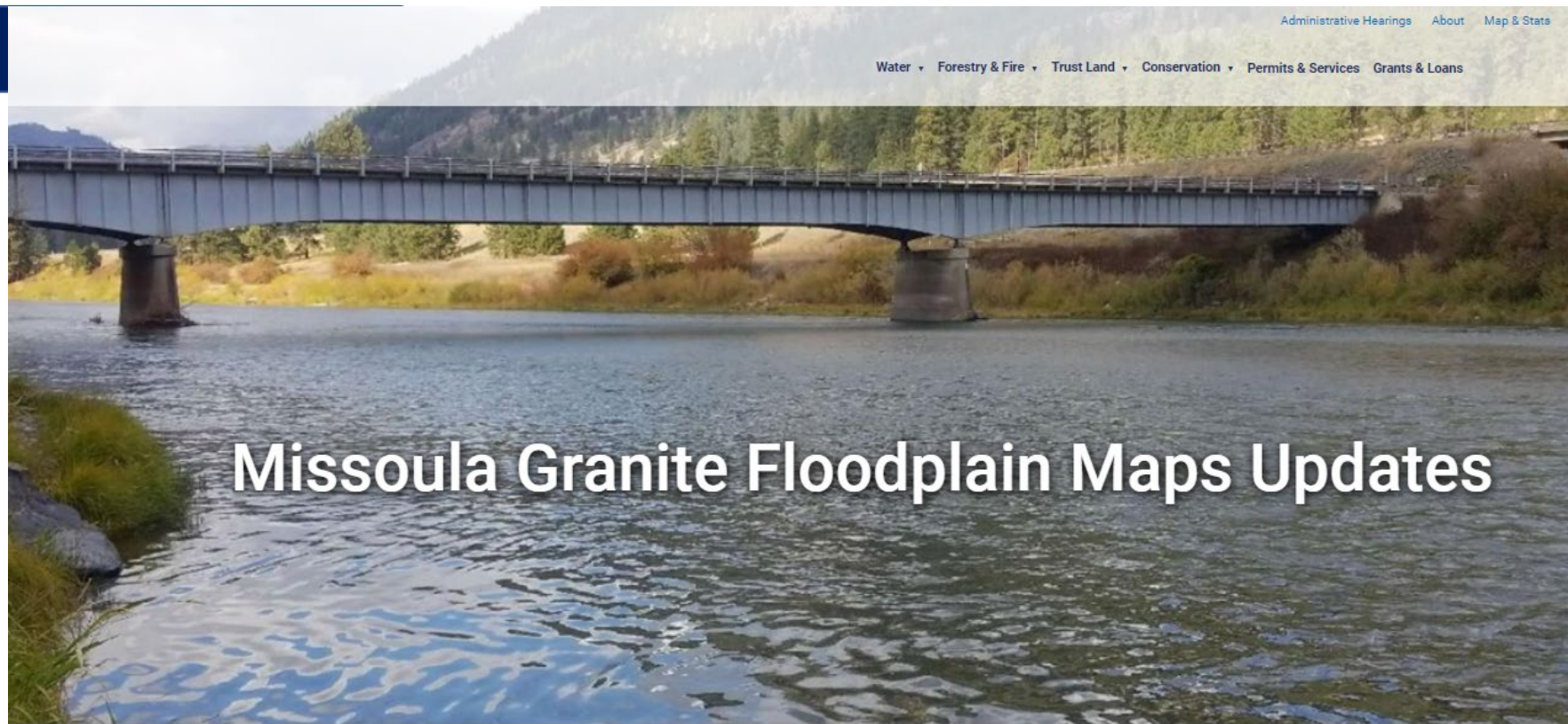
### Preliminary Flood Insurance Rate Maps and Study:

- 100-year Floodplain (1% annual chance)
- Floodway (within 100-year floodplain)
- 500-year Floodplain (0.2% annual chance)
- Flood Elevations



**4973.2**





## Missoula Granite Floodplain Maps Updates

### Project website

<https://dnrc.mt.gov/Water-Resources/Floodplains/Floodplain-Mapping-Updates/Missoula-Granite-Floodplain-Maps-Updates>

Missoula and Granite Counties are working with MT DNRC and FEMA to update and produce new Flood Insurance Rate Maps (FIRMS) for the Clark Fork River, Bitterroot River, Rock Creek, and Rock Creek Tributaries. Updated floodplain maps will depict the latest, most accurate flood risk data, and will eventually replace the existing floodplain maps which are based on data from the 1970s.

#### Draft Data:

Click on the link below to see the proposed floodplain maps and how they compare to the existing FEMA maps. Keep in mind these maps are in draft format.

Draft Map Viewer  
click here

#### Public Meeting Information:






Public Open House Meetings for Granite County and the Town of Drummond:

- Oct 3, 2023 | Town of Drummond Community Library | 5:30 - 7:00 PM
  - <https://mt-gov.zoom.us/j/85396350253?pwd=NnArWEpqM0ItbTlNFmUfVMEFnVU1OUT09>



## 1 Draft Floodplain Mapping

To see the current FEMA mapping, go to section 2.

-  100-year Floodplain (1% Annual Chance)
-  Floodway within 100-year Floodplain
-  500-year Floodplain (0.2% Annual Chance)
-  Current Effective FEMA Mapping Not Included in Mapping Update
-  Cross Sections - Flood Elevations (in Feet)

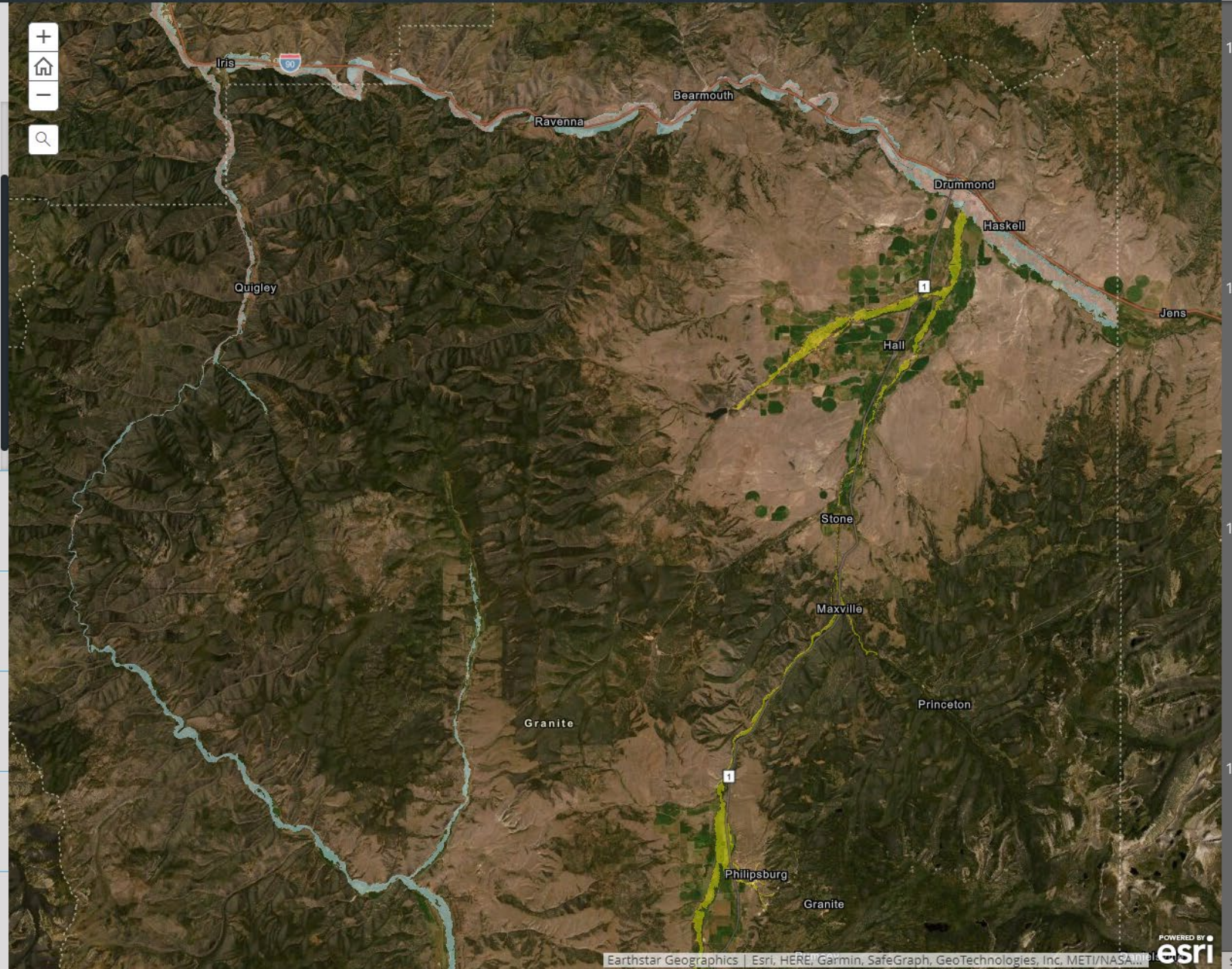
## 2 Current FEMA Floodplain Mapping

## 3 Compare Draft 100-year Floodplain Map to Current FEMA Floodplain Map

## 4 Compare Draft Floodway Map to Current FEMA Floodway Map

## 5 Estimated Ground Elevation for Buildings

## 6 Estimated Water Depth (in Feet) During 100-year Flood





1 Draft Floodplain Mapping

2 Current FEMA Floodplain Mapping

The FEMA floodplain boundaries and information were digitized from current FEMA maps. This viewer is not intended to be used for regulatory purposes and should only be used as a visualization tool. The official FEMA maps and other flood hazard products are available from the FEMA Map Service Center online at: <http://www.msc.fema.gov>

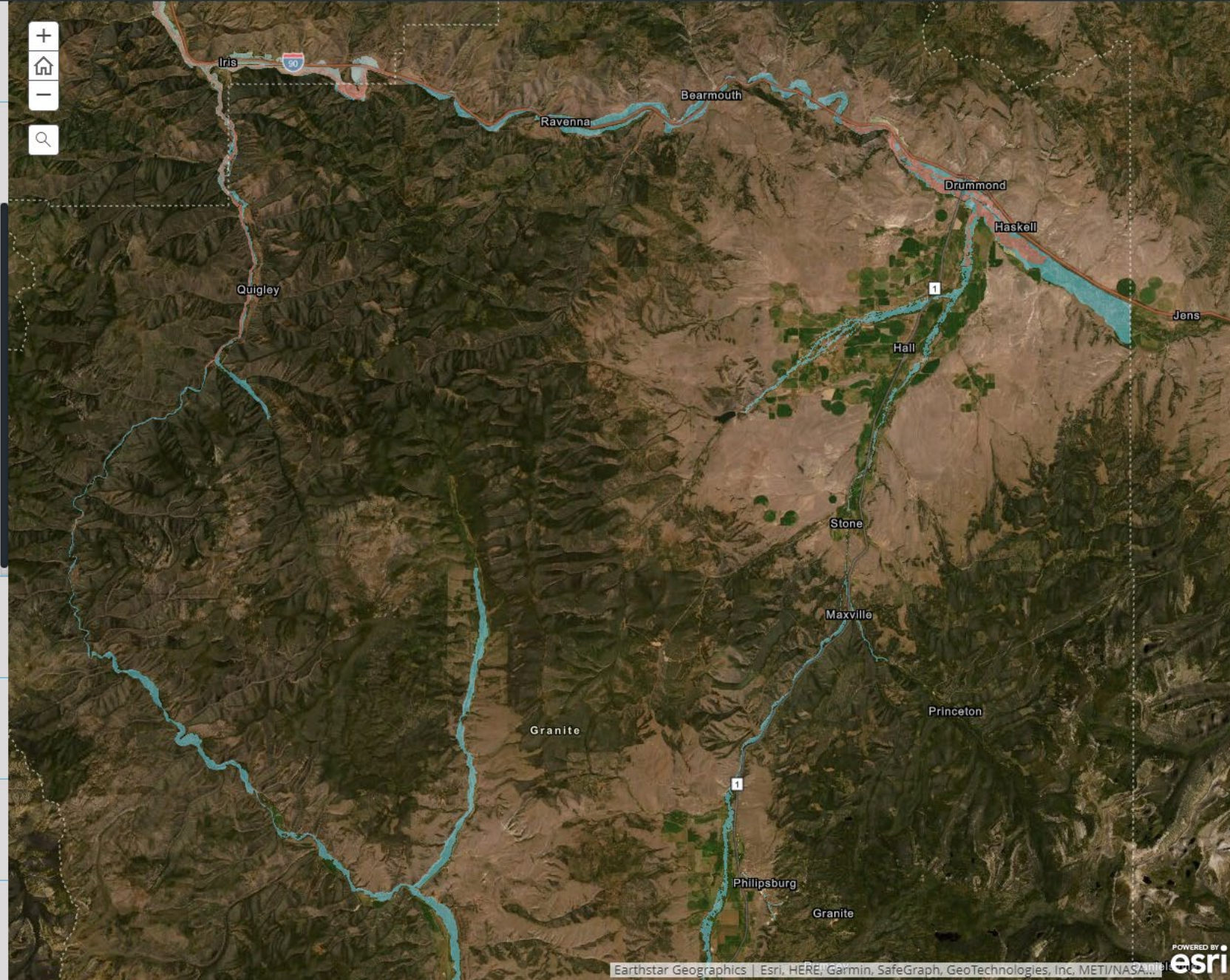
- 100-year Floodplain (1% Annual Chance)
- Floodway within 100-year Floodplain
- 500-year Floodplain (0.2% Annual Chance)
- Cross Sections - Flood Elevations (in Feet)

3 Compare Draft 100-year Floodplain Map to Current FEMA Floodplain Map

4 Compare Draft Floodway Map to Current FEMA Floodway Map




5 Estimated Ground Elevation for Buildings

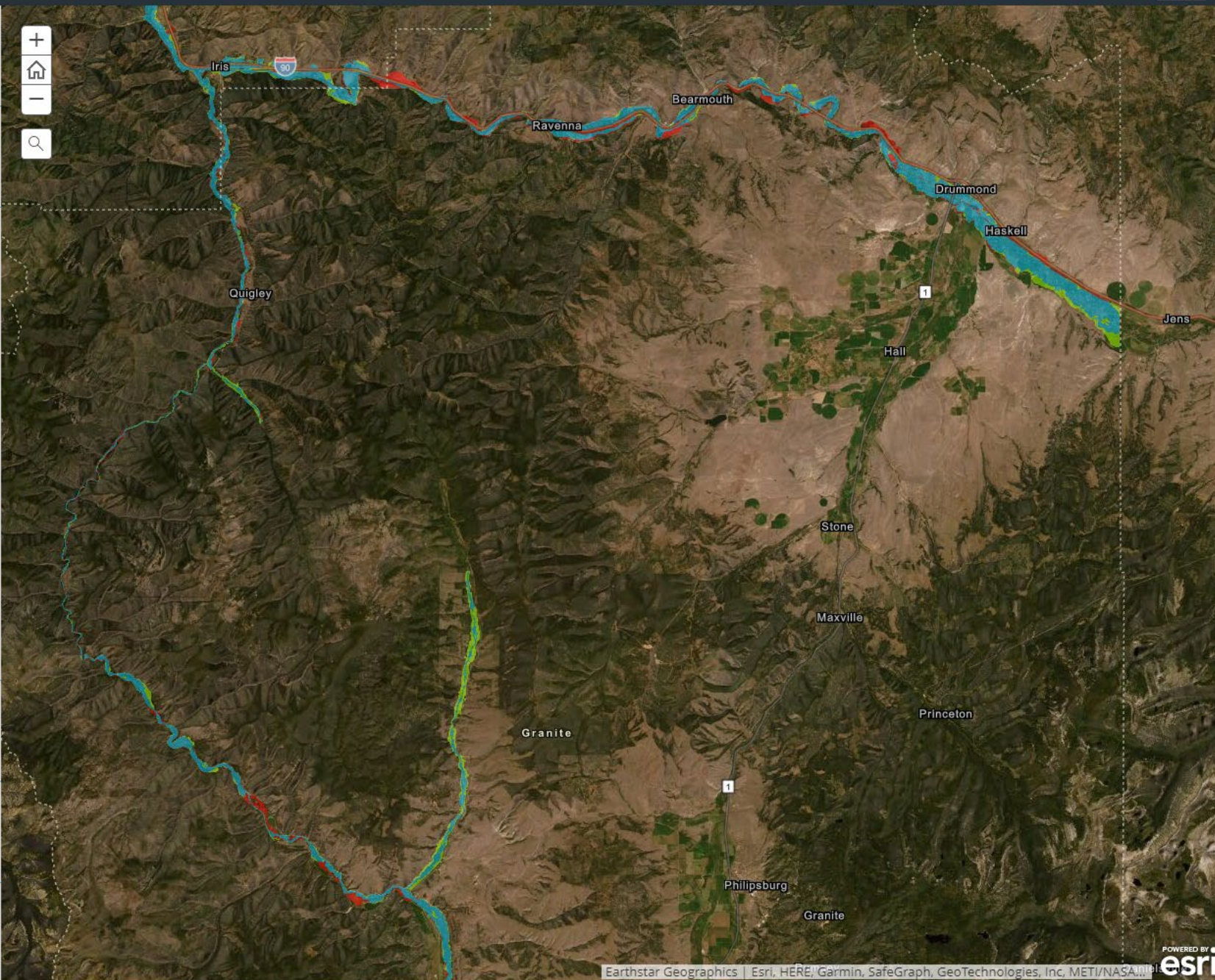
6 Estimated Water Depth (in Feet) During 100-year Flood



- ▶ **1** Draft Floodplain Mapping
- ▶ **2** Current FEMA Floodplain Mapping
- ▶ **3** Compare Draft 100-year Floodplain Map to Current FEMA Floodplain Map
- ▶ **4** Compare Draft Floodway Map to Current FEMA Floodway Map
- ▶ **5** Estimated Ground Elevation for Buildings
- ▶ **6** Estimated Water Depth (in Feet) During 100-year Flood

This section compares the proposed 100-Year (1% Annual Chance) floodplain mapping to the current FEMA 100 year (1% Annual Chance) Floodplain maps in portions of Missoula and Granite Counties. The 100-Year Floodplain is considered to have a HIGH flood risk, it is the area expected to be inundated by a flood event having a 1% chance of being equaled or exceeded in any given year.

-  Land Removed from FEMA Floodplain
-  Land Added to FEMA Floodplain
-  No Change to FEMA Floodplain

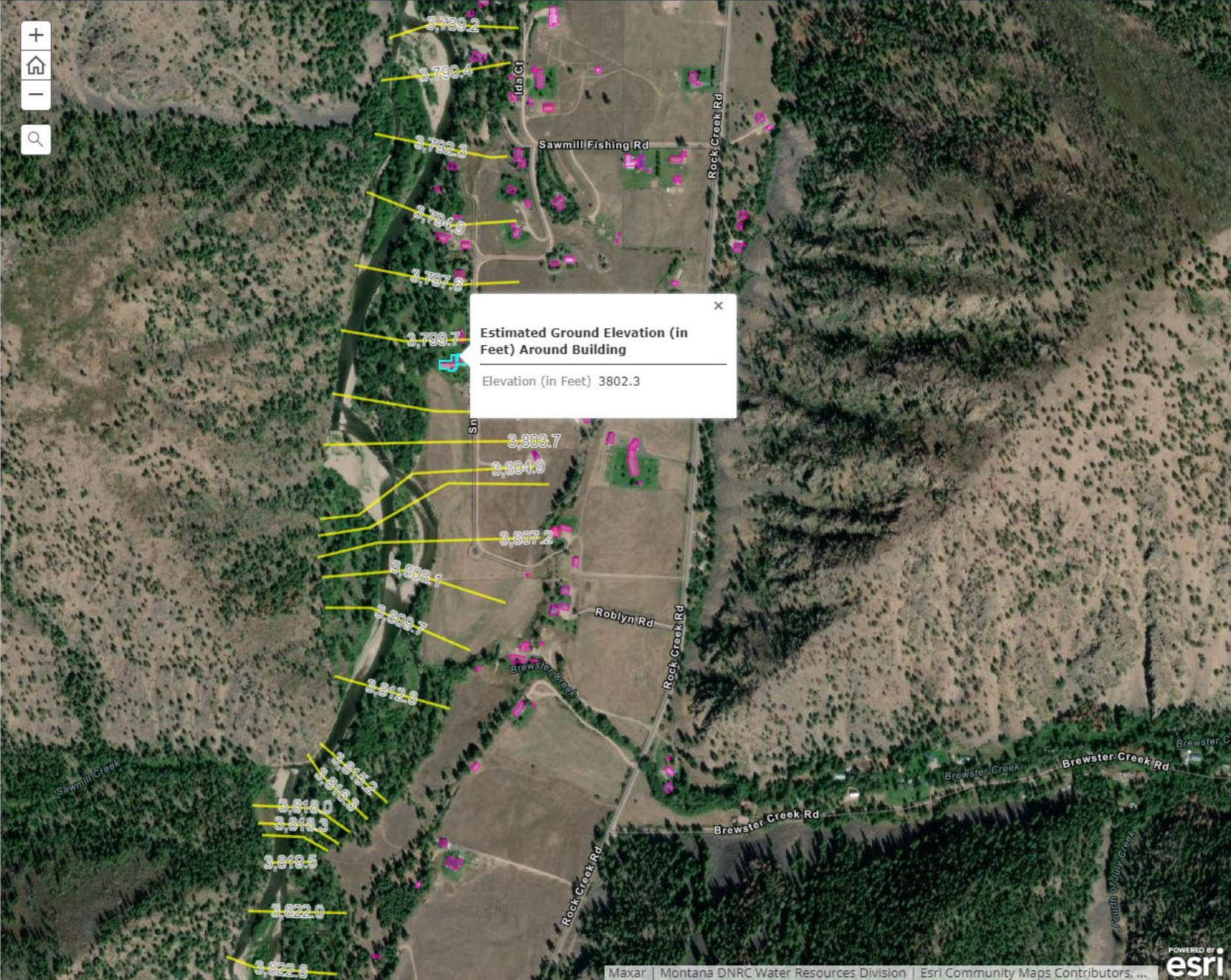


- 1 Draft Floodplain Mapping
- 2 Current FEMA Floodplain Mapping
- 3 Compare Draft 100-year Floodplain Map to Current FEMA Floodplain Map
- 4 Compare Draft Floodway Map to Current FEMA Floodway Map
- 5 Estimated Ground Elevation for Buildings

This section is intended to aid in estimating the elevation of the ground around a building in relation to the draft flood elevation. An aircraft sensor was used to collect the ground elevation data. The elevation estimates are displayed for informational purposes only. A surveyor can provide precise and certified elevations.

- 1) To find estimated ground elevation for a building, search for an address.
- 2) Click on the building, a pop-up window will appear.
- 3) Find the closest cross sections and compare elevations.

- 6 Estimated Water Depth (in Feet) During 100-year Flood

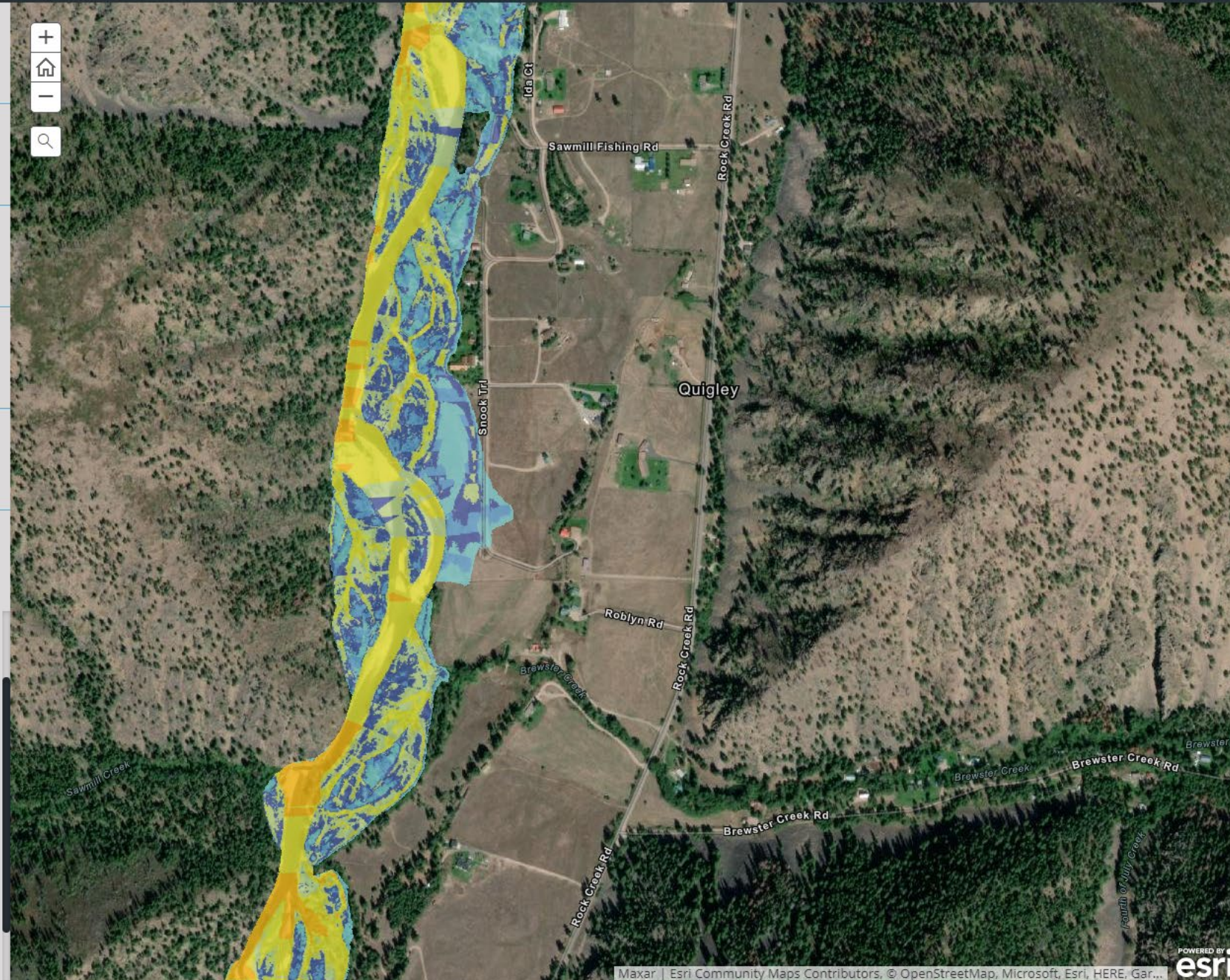


**Estimated Ground Elevation (in Feet) Around Building**

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Elevation (in Feet) 3802.3

- ▶ 1 Draft Floodplain Mapping
- ▶ 2 Current FEMA Floodplain Mapping
- ▶ 3 Compare Draft 100-year Floodplain Map to Current FEMA Floodplain Map
- ▶ 4 Compare Draft Floodway Map to Current FEMA Floodway Map
- ▶ 5 Estimated Ground Elevation for Buildings
- ▶ 6 Estimated Water Depth (in Feet) During 100-year Flood



# Questions? Discussion





**Granite County and Town of Drummond** have floodplain regulations that regulate development within the 100-year floodplain.

**Floodplain permits** are required for any manmade activities including construction and modifications to existing structures.



**Flood insurance** is mandatory for buildings with a federally backed loan in a high-risk flood zone.

**Flood insurance** is not mandatory in a lower risk zone but is highly recommended. Lenders can always require insurance in any zone.

**Flood insurance** is the best form of personal risk management and is an important form of economic protection against flooding.



# Rate Explanation Guide

FEMA's new rating methodology, **Risk Rating 2.0: Equity in Action**, considers specific characteristics of a building – the **Where, How, and What** – to provide a more modern, individualized, and equitable flood insurance rate. Understanding these characteristics helps to identify the building's unique flood risk and associated premium.

## WHERE It Is Built (Property Address)

FEMA uses the building's property address to determine flood risk for the property. The property address is used to determine:

- **A building's distance to flooding sources**, including the distance to the coast, ocean, rivers, and Great Lakes.
- **The ground elevation** where the building is located relative to the elevation of the surrounding area and the elevation of nearby flooding sources.
- **Other characteristics** such as the community where the building is located and how that relates to the Community Rating System discount or whether the building is on a barrier island.



## HOW It Is Built (Building Characteristics)

Knowing the physical characteristics of a building provides a deeper understanding of the building's individual flood risk and how it may impact premium. Relevant variables include:

### Building Occupancy

The type (and use) of the building being insured sets available coverage limits and determines what is covered as indicated in the policy form.

### Foundation Type

The foundation type provides important insight as to where the flood risk is likely to begin. For instance, risk varies based on whether a building's foundation is underground, at ground, or above ground.

### First Floor Height

Buildings whose first floor is higher off the ground have lower flood risk.

### Number of Floors

Buildings with more floors spread their risk over a higher area.



### Unit Location

Individual units on higher floors have lower flood risk than units on lower floors.

### Construction Type

Masonry walls perform better in different flooding events than wood frame walls.

### Flood Openings

Flood openings can lower a building's flood risk as they allow floodwaters to flow through a building's enclosure or crawlspace.

### Machinery & Equipment

Elevating above the first floor lowers the risk of damage to machinery & equipment covered in the policy.

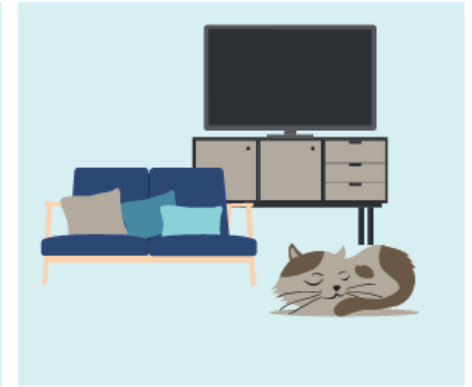
## WHAT Is Built and Covered (Replacement Cost and Coverage)

The building's replacement cost value, the amount of coverage requested, and the deductible choices influence the insurance premium.



### Building Replacement Cost Value\*

Buildings with higher costs to repair generally result in higher losses, resulting in higher premiums.



### Building and Contents Coverage

Policies with higher coverage limits have higher potential loss costs, which lead to higher premiums. Building coverage and contents coverage amounts are selected separately.



### Building and Contents Deductible

Policyholders who choose higher deductibles are assuming more of the risk during a flood event, which can result in a lower overall premium. Choosing a higher deductible means policyholders will need to cover more of the cost to rebuild out of pocket.

\* The Building Replacement Cost Value used for rating does not affect the replacement cost value determined at time of loss.



FEMA



Granite County



# Project Timeline Missoula-Granite Floodplain Maps Update

2020	Completed Summer 2022	Completed Fall 2022	Granite County April 26 <sup>th</sup> , 2023 Missoula County late 2023-early 2024(est.)	Granite County 2025 (est.) Missoula County late 2025 early 2026 (est.)
Measurements are made of the topography around the river, along with any culverts, bridges, and road crossings. LiDAR uses an airplane to collect ground elevation over a large area, and ground survey supplements the airborne data. Flood flow data determine how much water there will be in a river during a flood event.	The elevation and survey data are combined with the flood flow data to determine where the water will go when it overflows the channel and how far it will spread out. The area shown to be underwater and at high risk is mapped as the regulatory floodplain.	Draft data is delivered to the communities. Public open houses will be conducted for landowners to review the information.	FEMA Preliminary Maps are produced and ready for public review and comment period. <b>Granite County prelim maps issued May 24, 2023</b> A formal 90-day appeal & comment period is held. <u>Granite County appeal period late 2023- early 2024 (est.)</u> <u>Missoula County Mid 2024 (est.)</u>	FEMA Flood Insurance Rate Maps finalized.
<b>Data gathering</b>	<b>Engineering and floodplain modeling</b>	<b>Draft Data available public review</b>	<b>Preliminary Data public comment and appeal period</b>	<b>Flood Insurance Rate Maps become effective</b>

### Flood Study Conducted

4 steps of a flood study.

- 1) Survey & LiDAR
- 2) Hydrology (flood flow)
- 3) Hydraulics (engineering)
- 4) Mapping (delineation)

### Public Review

Public open houses are usually held during this time. Once at draft map stage and sometimes again at preliminary map stage.

During this time public comments are encouraged. There will be an official 90-day appeal period after the maps become preliminary.

### Resiliency and Mitigation efforts

Once new maps become effective the community can determine what mitigation efforts it would like to pursue to reduce flood risks.

- Begin reviewing the data
- Prepare for formal 90-day appeal and comment period
  - Sometime late 2023 to early 2024
  - Check project website or with community for appeal period updates

**GRANITE COUNTY FLOOD MAP UPDATES**  
*FEMA 90-Day Appeal & Comment Period*

**THE FEMA APPEAL & COMMENT PROCESS**

**APPEALS**  
 An Appeal is a technical issue with a Preliminary Flood Insurance Rate Map. Some common types of Appeals include a flood elevation objection (for a larger area, individual homes use a separate process) or a dispute with the delineation of a floodplain boundary. Appeals require supporting documentation such as a topographic map, engineering study, photographs, etc. Visit [www.fema.gov](http://www.fema.gov) and search "Criteria for Appeals of Flood Insurance Rate Maps" for more information about Appeals.

**COMMENTS**  
 A Comment is map error found on a Preliminary Flood Insurance Rate Map. Some common types of Comments include the correction of a street name, town limit boundary, etc. Comments do not generally require supporting documentation.

**COMMUNITY CONTACT INFORMATION**

LINDA BOUCK  
 Granite County Floodplain Administrator  
[gcplanning@co.granite.mt.us](mailto:gcplanning@co.granite.mt.us)  
 406-859-7021

CARY McLURE  
 Town of Drummond Floodplain Administrator  
[townofdrummond@blackfoot.net](mailto:townofdrummond@blackfoot.net)  
 406-288-3231

**FEMA'S 90-DAY APPEAL & COMMENT PERIOD IS TENTATIVE LATE 2023-EARLY 2024.**

**IF YOU HAVE AN APPEAL OR COMMENT, YOU ARE ENCOURAGED TO BEGIN ORGANIZING MATERIALS EARLY SO THAT YOU ARE PREPARED FOR THE 90-DAY APPEAL & COMMENT PERIOD.**

**ALL SUBMITTALS MUST BE RECEIVED BY FEMA DURING THE APPEAL PERIOD TO BE CONSIDERED.**

Project Website: <https://dnrc.mt.gov/Water-Resources/Floodplains/Floodplain-Mapping-Updates/Missoula-Granite-Floodplain-Maps-Updates>

All submittals have to be submitted to your community. The Appeal & Comment form can be found on the project website or copies can be found at your community offices listed below. For an appeal or comment to be valid it must be submitted on the appeal form.

**COMMENT AND APPEAL FORM**  
 Granite County Preliminary Flood Insurance Rate Maps

Granite County appreciates your input on the Preliminary Flood Insurance Rate Maps that the Federal Emergency Management Agency (FEMA) released for public review and comment. Your Comments and Appeals will be used to identify issues and concerns of importance during the review and adoption process. All information will be forwarded to FEMA for consideration.

Forms must be received by Granite County Floodplain Administrator before the 90-Day Appeal and Comment Period.

Please provide the following information:

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Address: \_\_\_\_\_

Address of property in question: \_\_\_\_\_

Township: \_\_\_\_\_ Range: \_\_\_\_\_ Lot/Tract: \_\_\_\_\_ Geocode: \_\_\_\_\_

Parcel Number: \_\_\_\_\_

Comments are found on the Preliminary Flood Insurance Rate Maps which can be viewed at the Granite County Planning Department at FEMA's MAP service center here <https://msc.fema.gov/portal/advanceSearch>

What is the type of objection:

Technical issue such as an objection to a flood elevation or delineation of a floodplain boundary. To make an Appeal, check the box above indicating an Appeal and provide a detailed description of the issue below. You must also attach supporting documentation to this form, such as topographic maps, an engineering study, photographs, etc. More information on the type of documentation needed for an appeal can be found here: <https://dnrc.mt.gov/Water-Resources/Floodplains/Floodplain-Mapping-Updates/Missoula-Granite-Floodplain-Maps-Updates>

Comment: \_\_\_\_\_

Map error such as an objection to a street name, town limit boundary, etc. To make a Comment, check the box above indicating a Comment and provide a detailed description of the issue below. Supporting documentation is not required.

Detailed description of the objection and attach supporting documentation (if needed):  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

(Continue on reverse)

Completed forms to (Linda Bouck) Granite County Floodplain Administrator:  
 Granite County Planning Department  
 200 E. 2nd St.  
 Helena, MT 59858

# One-on-One sessions

Floodplain Mapping Specialists

**Nadene Wadsworth**

[Nadene.Wadsworth@mt.gov](mailto:Nadene.Wadsworth@mt.gov)

(406) 444-6732

**Hannah Shultz**

[Hannah.Shultz2@mt.gov](mailto:Hannah.Shultz2@mt.gov)

(406) 444-0599

National Flood Insurance  
Program Coordinator and  
Community Assistance

**Traci Sears**

[TSears@mt.gov](mailto:TSears@mt.gov)

(406) 444-6654