



Floodplain Mapping Update: Jefferson County
December 6, 2022 – Whitehall
Public Informational Meeting

Who is Involved

JEFFERSON COUNTY

Megan Bullock

County Sanitarian and Floodplain Administrator



TOWN OF WHITEHALL

Allissa Christensen

Town Clerk/Treasurer and Floodplain Administrator



MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION (DNRC)

Tiffany Lyden

Mapping Outreach Coordinator

Nadene Wadsworth

Mapping Outreach Coordinator

Shylea Wingard

Floodplain Specialist

Brent Zundel

DNRC Regional Engineer



PIONEER TECHNICAL SERVICES

Jon Jupka

Project Manager



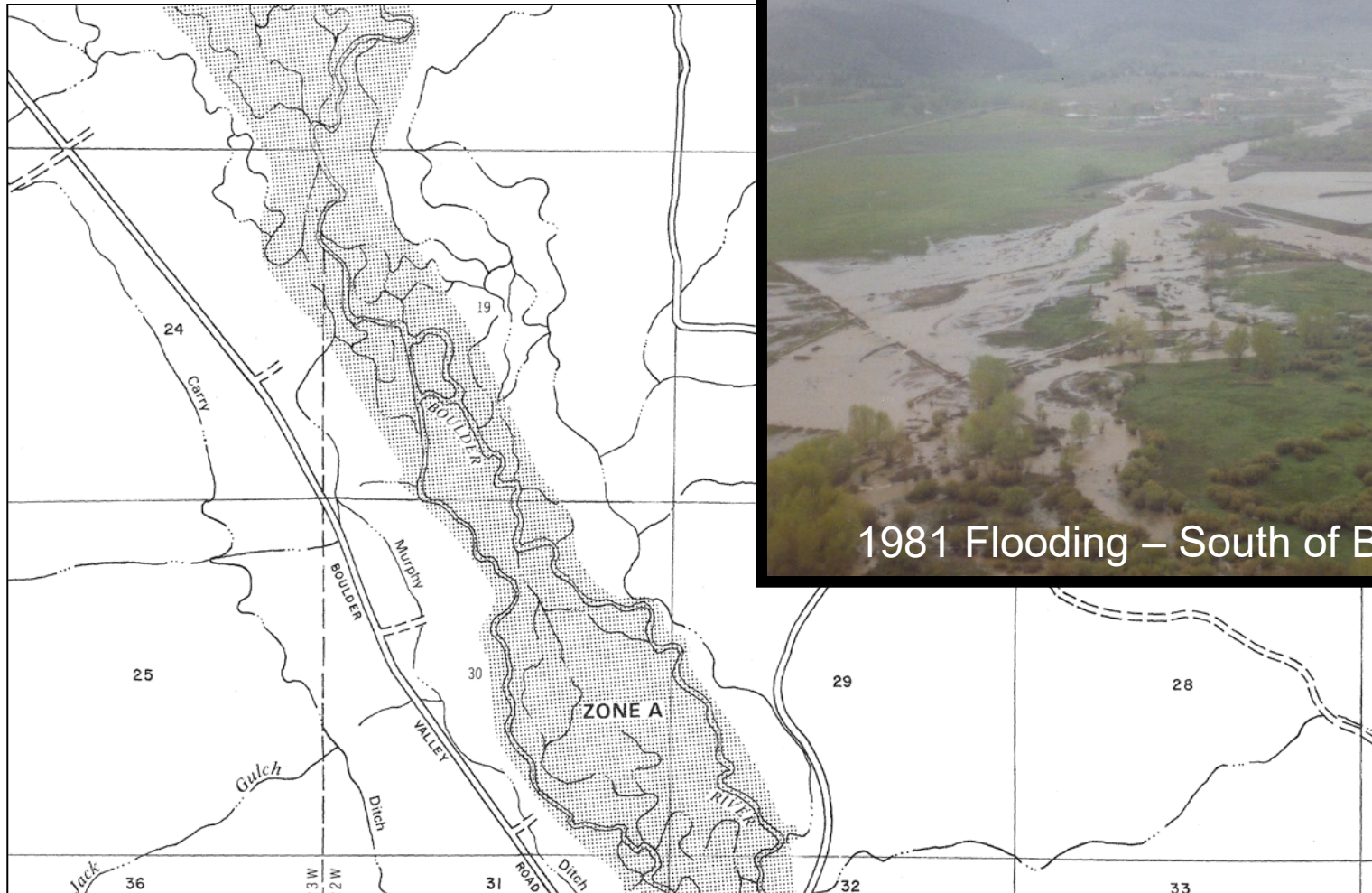
DOWL

Drew Vance

Project Engineer

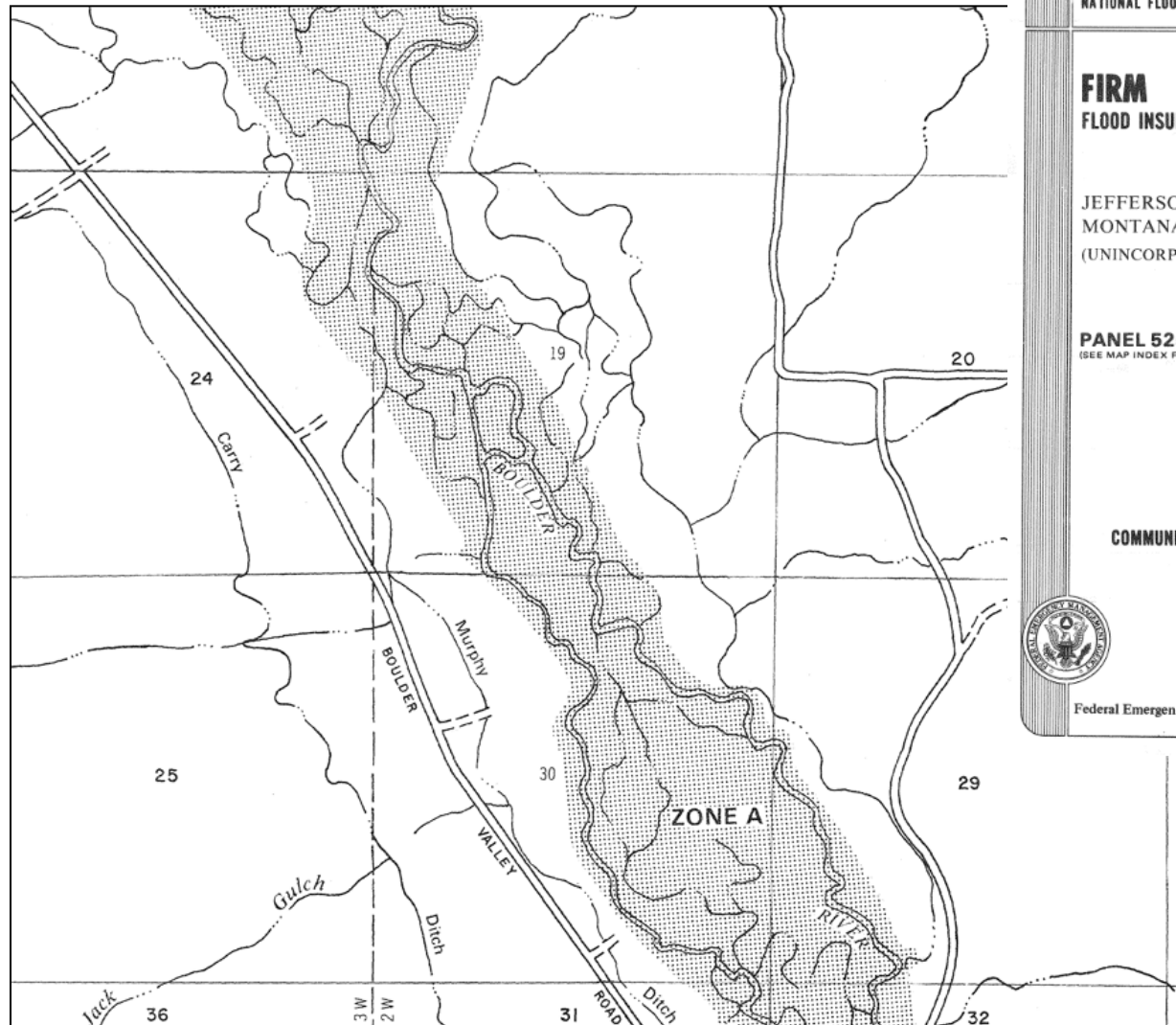


Identifying Risk Through Mapping



1981 Flooding – South of Boulder

Flood Insurance Rate Maps



NATIONAL FLOOD INSURANCE PROGRAM


FIRM
FLOOD INSURANCE RATE MAP

JEFFERSON COUNTY,
MONTANA
(UNINCORPORATED AREAS)

PANEL 525 OF 600
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
300154 0525B

EFFECTIVE DATE:
JUNE 17, 1986



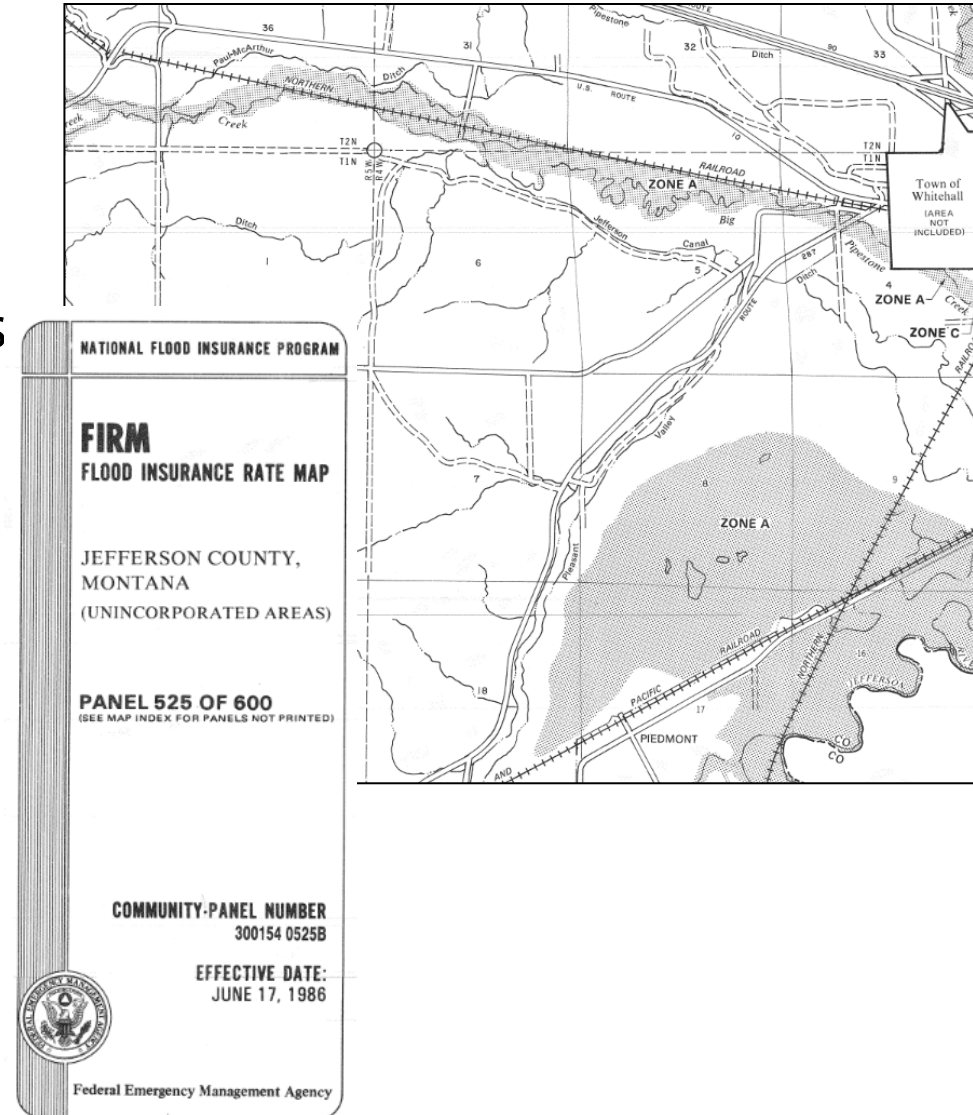
Federal Emergency Management Agency

100 year flood

1% annual chance
flood

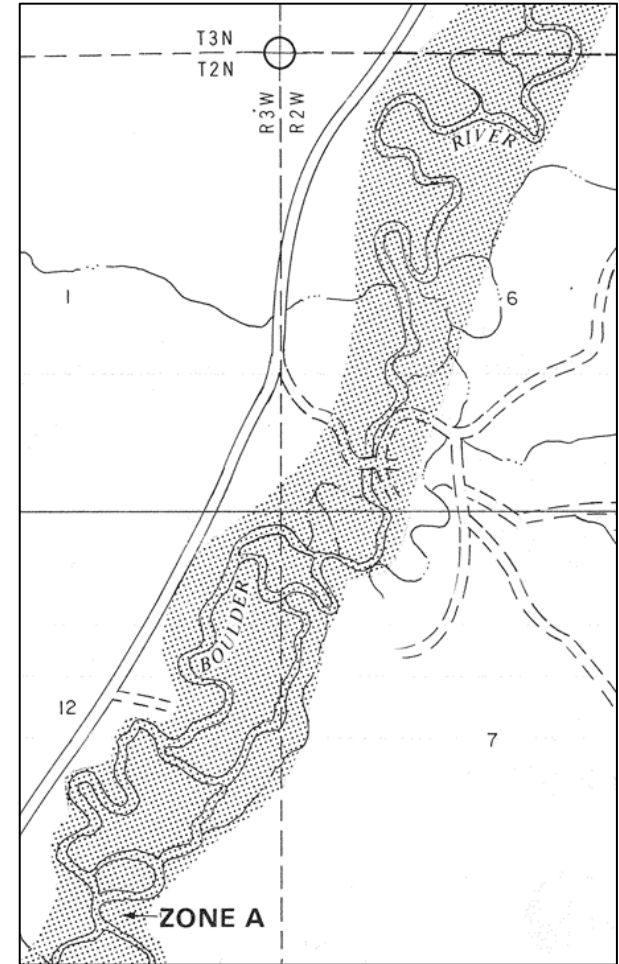
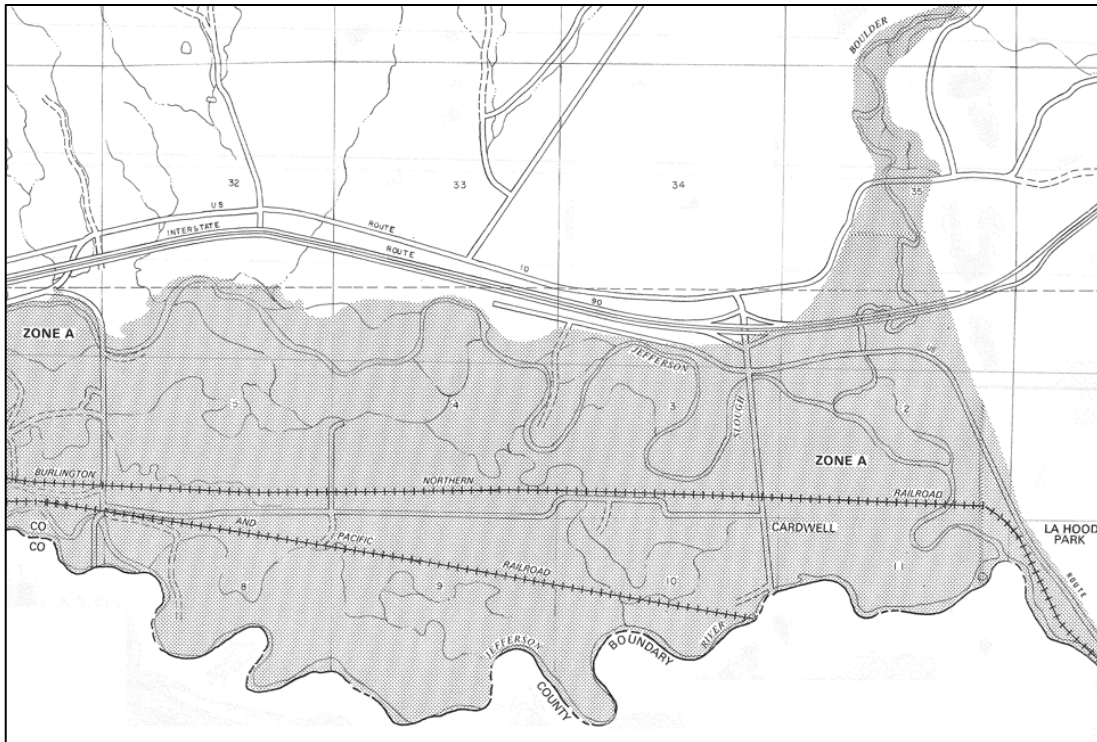
Flood Insurance Rate Maps

- Indicate areas of flood risk
- Used for:
 - Local floodplain regulations
 - Septic permits/Planning
 - Lenders/Mortgages
 - Emergency planning
- Need periodic updating



Jefferson County - Existing Floodplain Maps

- 1978 Flood Hazard Maps
- 1986 reprinted as FEMA Flood Insurance Rate Maps
 - Coarse, Generalized Mapping
 - No flood elevations or other information



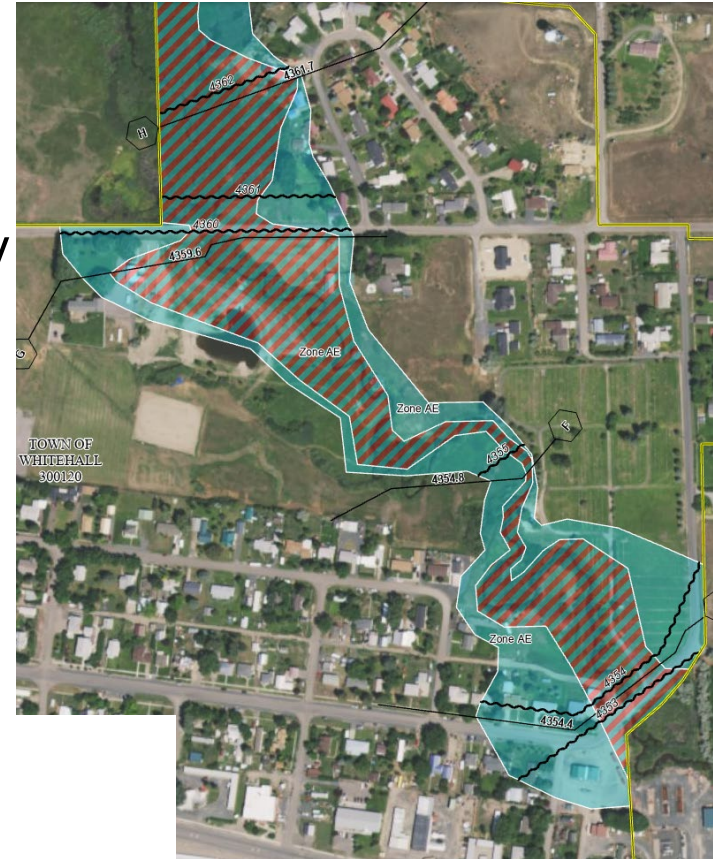
Maps are based off data from 1970s

Whitehall - Existing Floodplain Maps

Digital floodplain maps with aerial imagery

Whitetail Creek

- Updated with 2003 Flood Study
- Flood elevations
- Used course topography



Big Pipestone Creek

- Copied over from old FEMA maps (1970s data)
- Course, generalized mapping

Jefferson County Floodplain Mapping Update

JEFFERSON COUNTY
Board of Commissioners

P.O. Box H *Boulder, Montana 59632*
Phone: (406) 225-4025

June 7, 2017

Steve Story, PE, CFM
State Floodplain Engineer
MT DNRC
Water Operations Bureau
1924 9th Avenue
Helena, Montana 59620-1601

RE: Request of Assistance for Updated Floodplain Studies

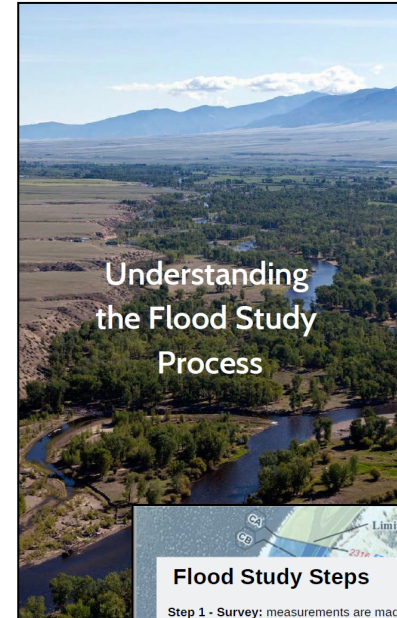
Dear Steve,

Jefferson County utilizes 1986 Federal Insurance Rate Maps showing Approximate Zone A areas for current floodplain maps. Without elevations for the base flood, the burden of determining these elevations becomes the landowners. Over the years many landowners have applied to FEMA for a Letter of Map Amendment and have been successful in demonstrating portions of their property are not within Approximate Zone A areas. In the north end of the County, the only resource we have is aerial photos from the flood of 1981; however, we recently were informed these maps can not be used for regulatory purposes.

Jefferson County is committed to protecting surface water, managing flood risks and participating in the Federal Flood Insurance Program. Detailed studies would be beneficial to County residents and current information would allow for better regulation of flood prone areas.

Thank you for the opportunity to participate in this effort to update Floodplain Studies in Jefferson County. Having better available data will provide much needed support we've waited a long time for.

- Update existing FEMA floodplain maps
- Flood elevations and better data
- New FEMA floodplain maps in north end of county



Understanding the Flood Study Process

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.


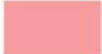



Step 3 - Hydraulics: 5 main components to the model
1) Hydrology (stream flow data)
2) Cross Sections (measurements of the river bottom at key locations)
3) Roughness (thickness of vegetation, land cover, etc determined by surveyors)
4) Structures (road crossings, culverts, bridges, etc.)
5) Downstream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

Step 4 - Mapping (delineation): The result will be the floodplain boundary and a depth grid identifying the shallower and deeper areas of flooding.

Draft Maps – ready for review

Madison-Ruby-Jefferson Watersheds and Jefferson County Floodplain Mapping Update

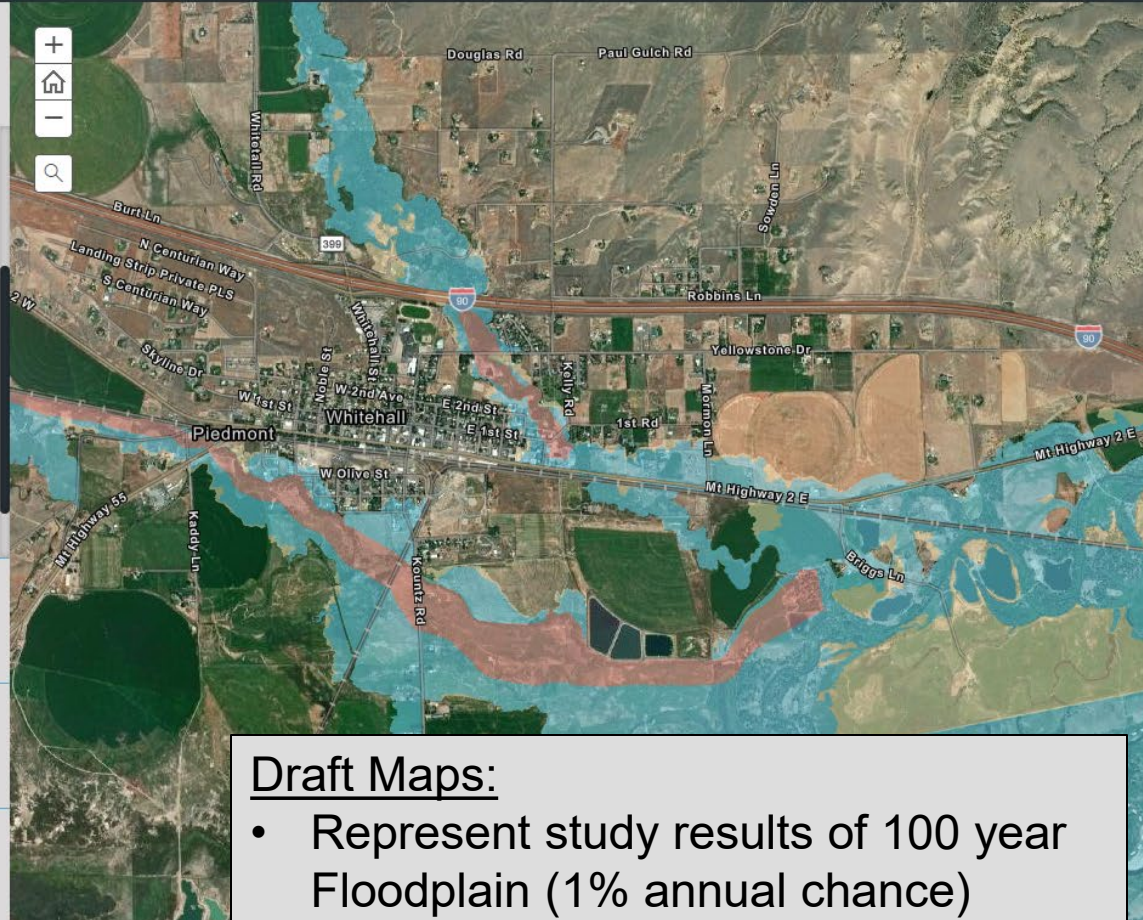
1 Draft Floodplain Mapping

-  100-year Floodplain (1% Annual Chance)
-  Floodway
-  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



Draft Maps:

- Represent study results of 100 year Floodplain (1% annual chance)
- Will be used to produce Preliminary FEMA Maps

Jefferson County Flood Maps Update

Jefferson County has been working with the Federal Emergency Management Agency (FEMA) and Montana Department of Natural Resources and Conservation (DNRC) to produce new and updated 100-year floodplain maps. The project includes updating all the existing mapped floodplains in the county, and producing new floodplain maps for portions of Prickly Pear Creek and tributaries in the northern part of the county. [View study extents here.](#)

Updated floodplain maps will depict the latest, most accurate flood risk data, and will eventually result in updated FEMA floodplain maps. Most of the existing FEMA floodplain maps in Jefferson County are based off of data from the 1970s. For more information see: [Floodplain FAQs](#) [Flood Study Process](#)

Public Open House Meeting:

December 6, 2022 in Whitehall | 5:30-7:00pm | Borden's Hotel | 103 West Legion St
(to listen in remotely via zoom: <https://ogilvy.zoom.us/j/93962020469> Passcode: 7477)

Jefferson County and Montana DNRC hosted two public open house meetings in June for the northern and central portions of Jefferson County:

June 21, 2022 in Montana City | [view slides](#) | [view video recording](#)
June 23, 2022 in Boulder | [view slides](#) | [view video recording](#)

View Draft Maps

Draft Map Viewer

[click here](#)

please be patient while the data loads on the viewer

The draft study information and maps need to go through a lengthy technical and public review process before being finalized. When finalized, new maps could have effects on some property owners in mapped floodplains. See: [100 year Floodplain](#) [Floodway \(within 100 year floodplain\)](#) [500 year Floodplain](#)

View Draft Reports

Hydrology Reports*



Jefferson River Watershed
Hydrologic Analysis



Jefferson County Map
Modernization Project
Jefferson County, Montana

More Info

[Floodplain FAQs](#)

[Flood Study Process](#)

Jefferson County

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[email](#)

City of Boulder

Ellen Hame
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Town of Whitehall

Allissa Christensen
Floodplain Administrator
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DNRC Contacts

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[email](#)



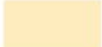


Nadene Wadsworth
DNRC Outreach Specialist
(406) 444-6732
[email](#)

Draft Maps – Ready for review

www.floodplain.mt.gov/jefferson

Madison-Ruby-Jefferson Watersheds and Jefferson County Floodplain Mapping Update

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Draft Maps – Ready for review

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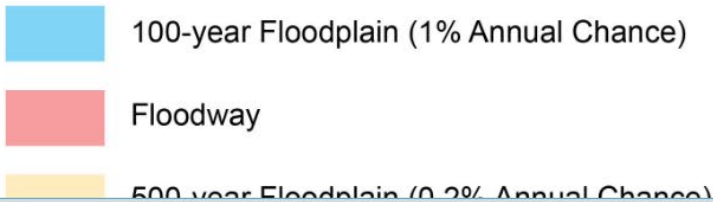
Madison-Ruby-Jefferson Watersheds and Jefferson County Floodplain Mapping Update

1 Draft Floodplain Mapping

To search by address, click the magnifying glass to the right. To navigate, use a mouse or the (+) and (-) signs.

The flood hazard information in this section is currently a **draft** product. It only includes Madison County, Jefferson County, and selected areas pertaining to this study in Broadwater and Gallatin Counties. The draft floodplain designations are undergoing public review and are based on updated flood study information.

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

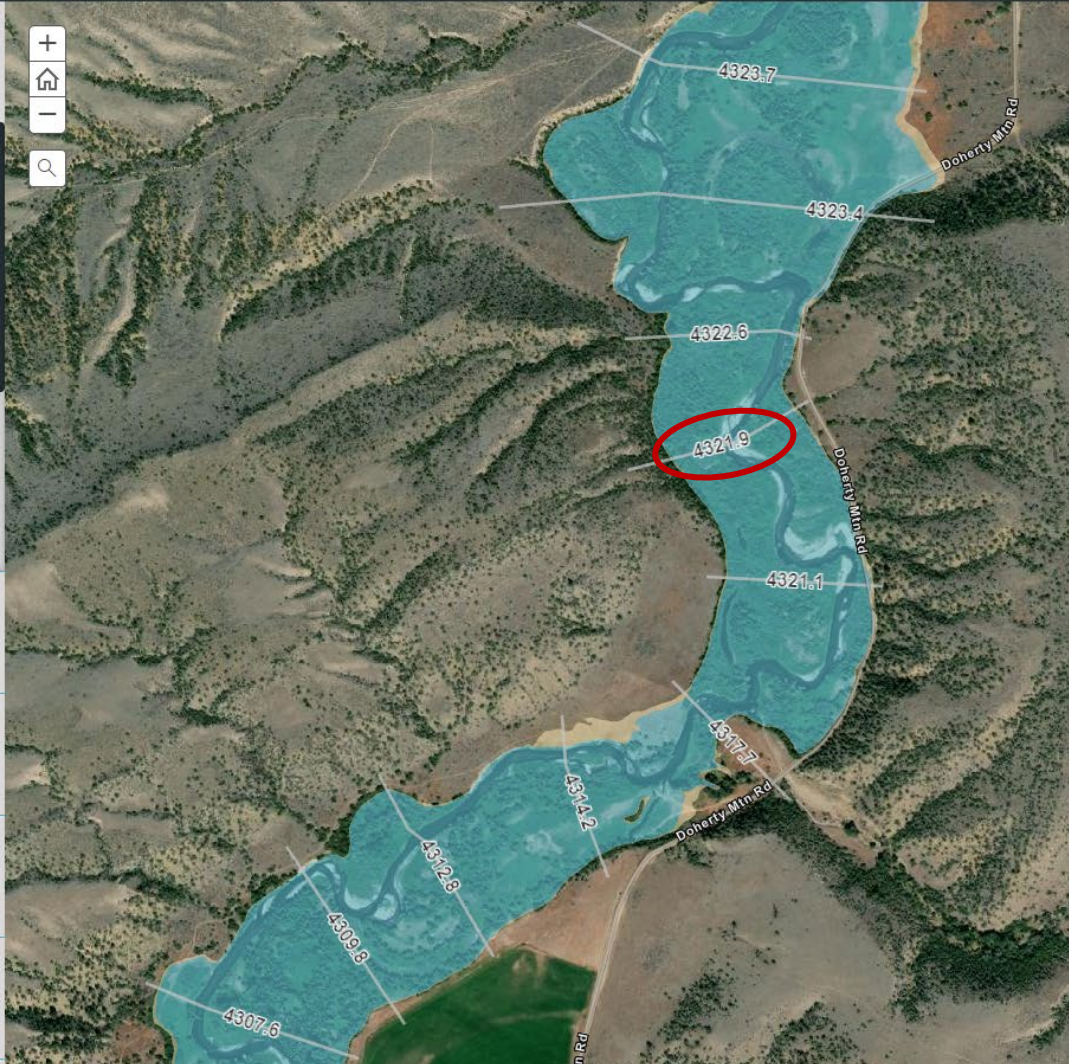


2 Current FEMA Floodplain Mapping

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



Draft Maps – Ready for review

www.floodplain.mt.gov/jefferson



Aw, Snap!

Something went wrong while displaying this webpage.

Error code: Out of Memory




[Learn more](#)

[Reload](#)

Current Maps

www.floodplain.mt.gov/jefferson





Madison-Ruby-Jefferson Watersheds and Jefferson County Floodplain Mapping Update

A Story Map   

1 Draft Floodplain Mapping

2 Current FEMA Floodplain Mapping

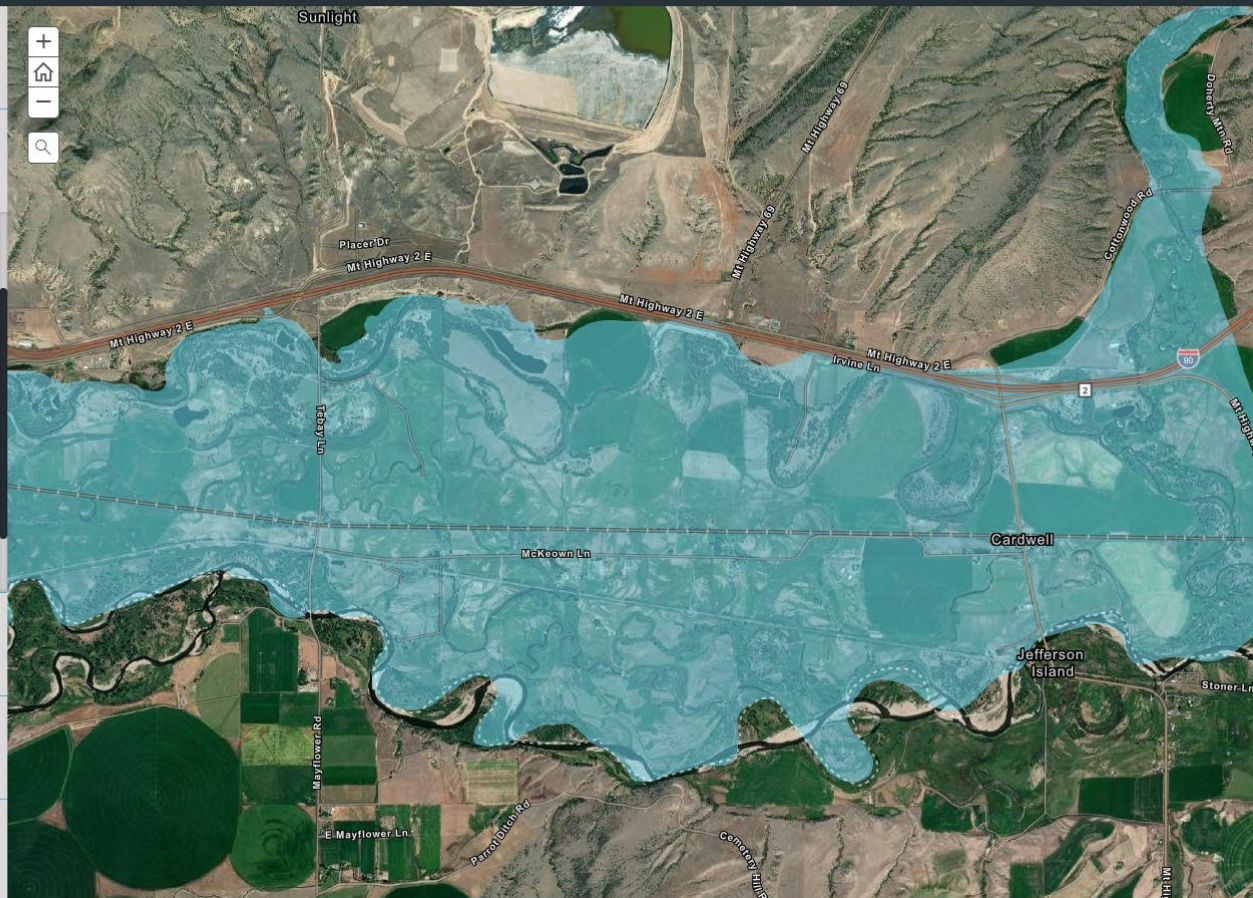
for regulatory purposes and should only be used as a visualization tool. The official FEMA maps and other flood hazard products are available from the FEMA Map Service Center online at: <http://www.msc.fema.gov>

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-  Floodway
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
5 Estimated Ground Elevation for Buildings



Proposed Changes

www.floodplain.mt.gov/jefferson

Madison-Ruby-Jefferson Watersheds and Jefferson County Floodplain Mapping Update





A Story Map   

1 Draft Floodplain Mapping

2 Current FEMA Floodplain Mapping

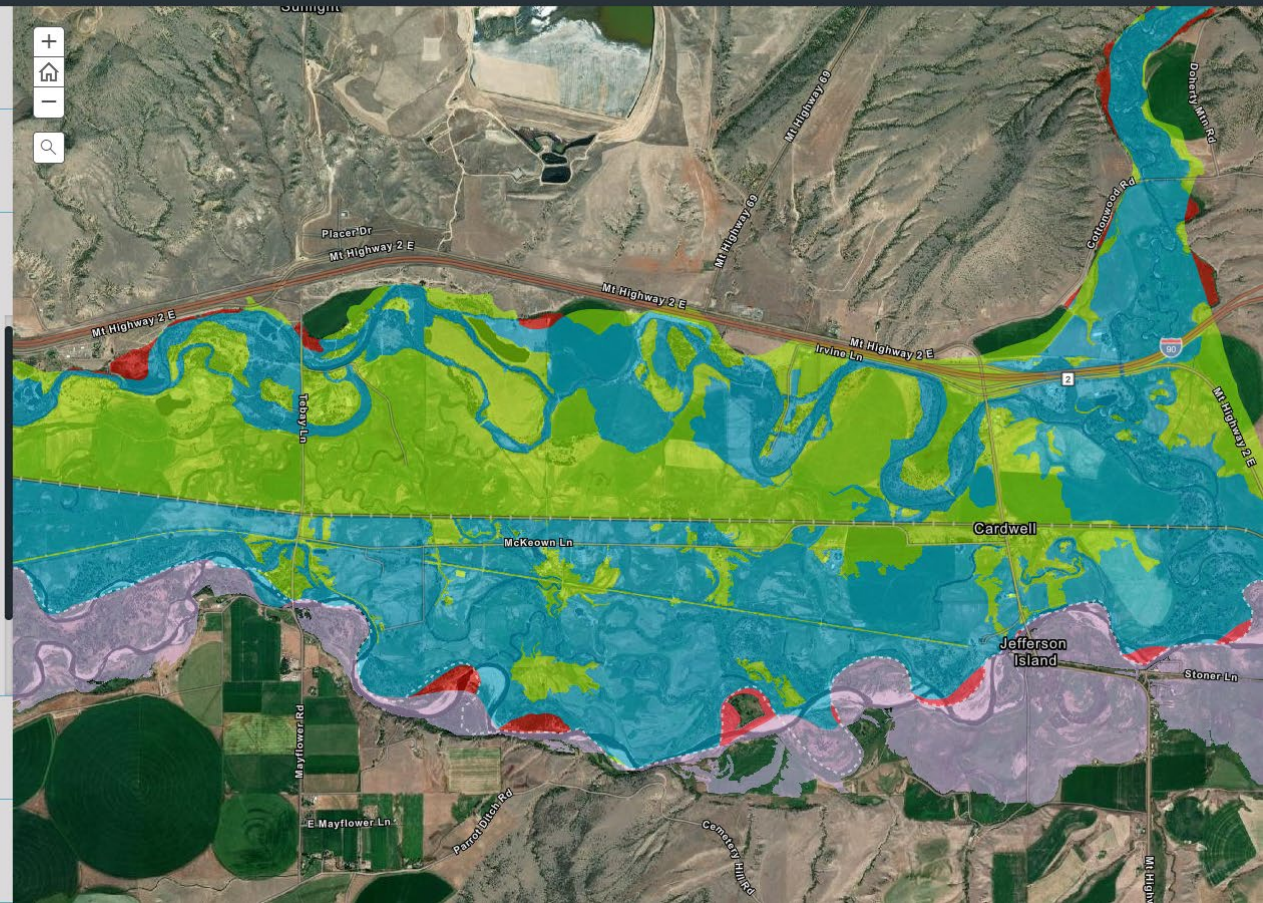
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This section compares the proposed 100-Year (1% Annual Chance) floodplain mapping to the current FEMA 100 year (1% Annual Chance) Floodplain maps in Jefferson County, and portions of Madison, Broadwater, and Gallatin Counties. The 100-Year Floodplain 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
-  No Current FEMA Floodplain, Land Added to FEMA Floodplain

4 Compare Draft Floodway Map to Current FEMA Floodway Map


5 Estimated Ground Elevation for Buildings



Proposed Changes

www.floodplain.mt.gov/jefferson

Madison-Ruby-Jefferson Watersheds and Jefferson County Floodplain Mapping Update





A Story Map   

1 Draft Floodplain Mapping

2 Current FEMA Floodplain Mapping

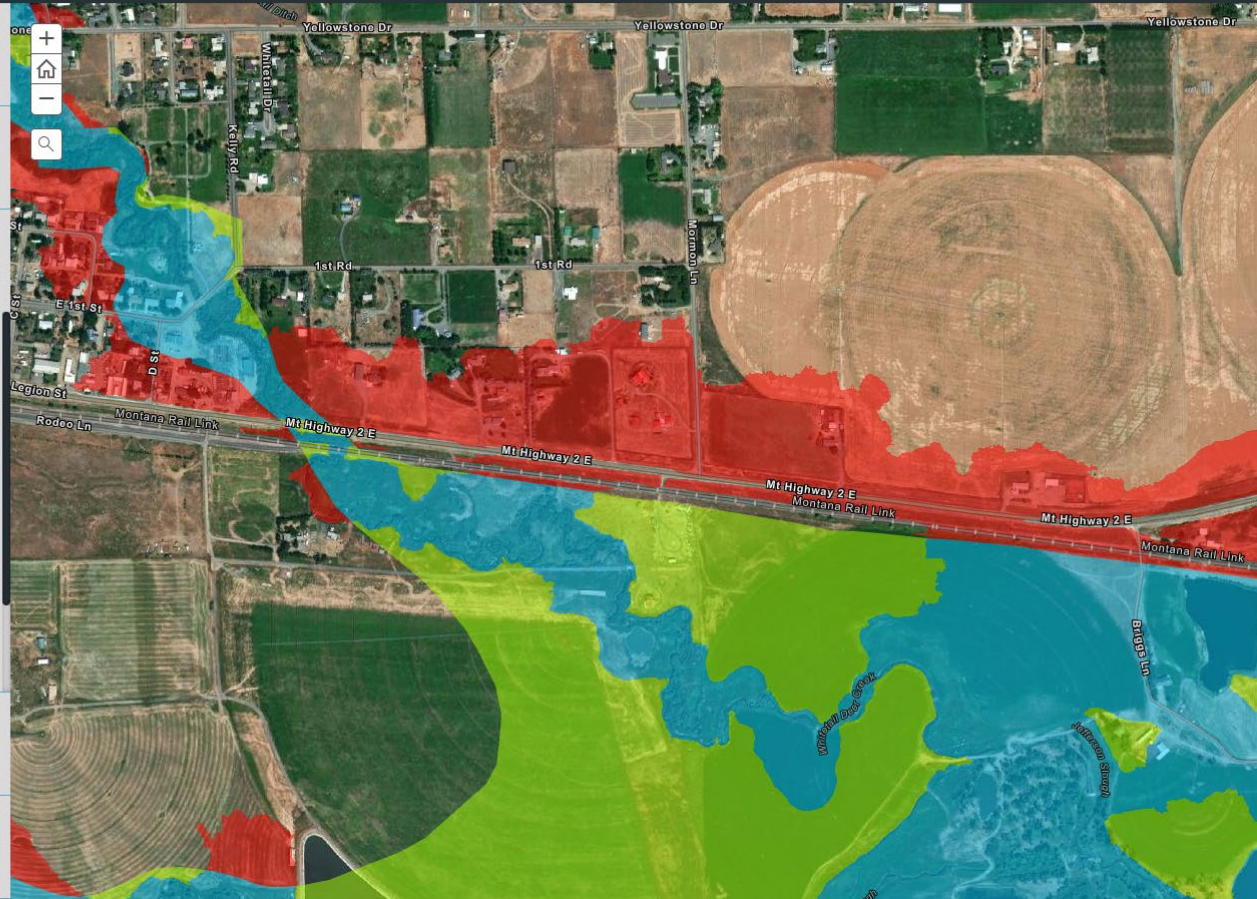
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-  Land Removed from FEMA Floodplain
-  Land Added to FEMA Floodplain
-  No Change to FEMA Floodplain
-  No Current FEMA Floodplain, Land Added

4 Compare Draft Floodway Map to Current FEMA Floodway Map




5 Estimated Ground Elevation for Buildings



Proposed Changes

www.floodplain.mt.gov/jefferson

Madison-Ruby-Jefferson Watersheds and Jefferson County Floodplain Mapping Update




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
5 Estimated Ground Elevation for Buildings



Proposed Changes

www.floodplain.mt.gov/jefferson

Madison-Ruby-Jefferson Watersheds and Jefferson County Floodplain Mapping Update



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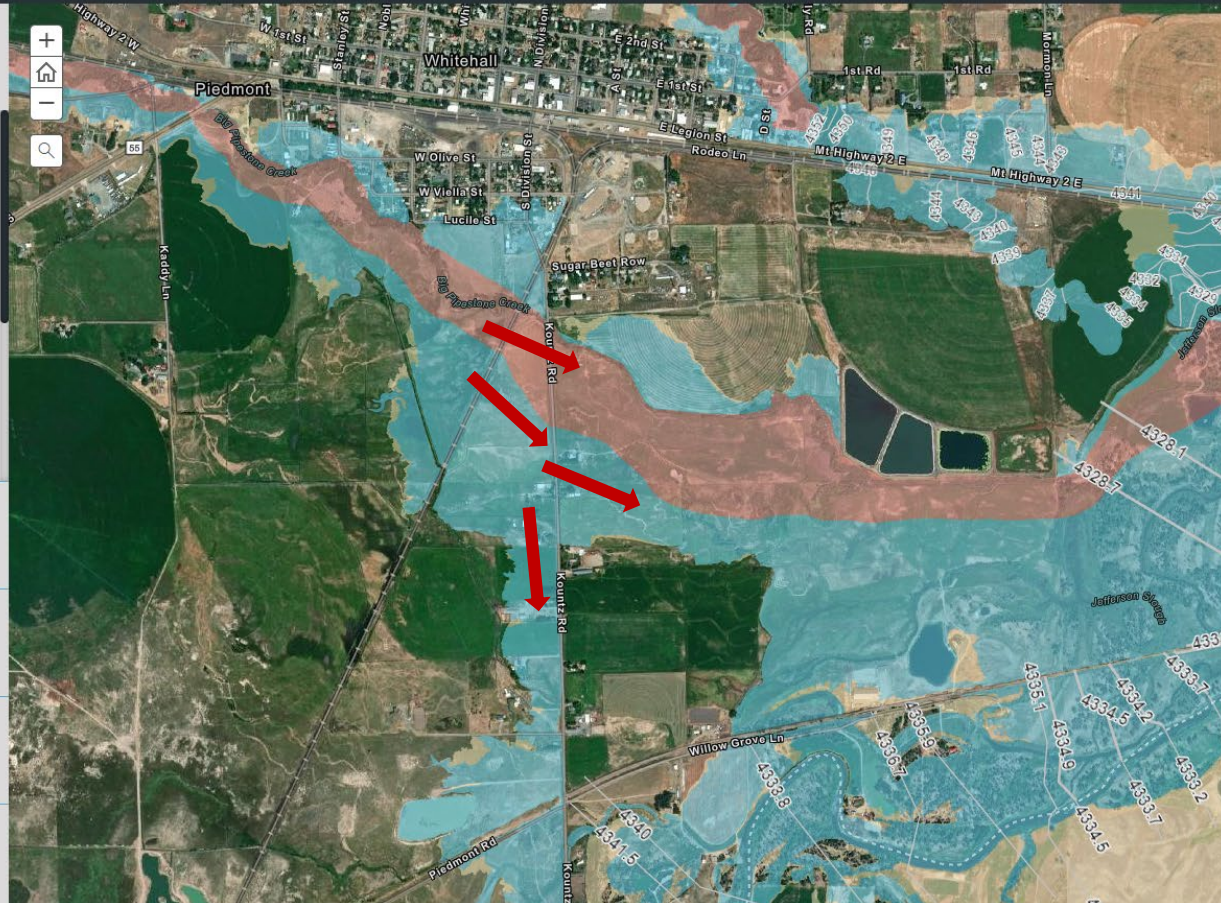
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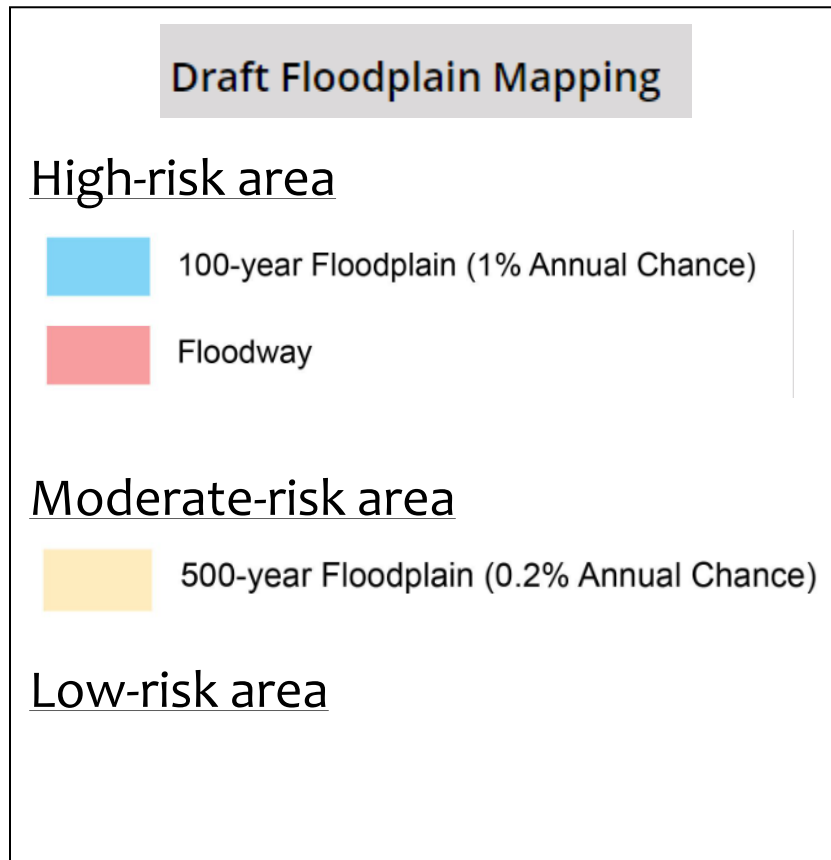
5 Estimated Ground Elevation for Buildings



Identify Your Flood Risk

www.floodplain.mt.gov/jefferson

Know where your property or structure is in relation to the draft floodplain boundaries and flood risk zones



View the draft maps at home:
www.floodplain.mt.gov/jefferson

Informational Materials

www.floodplain.mt.gov/jefferson

JEFFERSON COUNTY FLOOD MAP UPDATES

www.floodplain.mt.gov/jefferson

Owning property in a 100-YEAR FLOODPLAIN

A 100-YEAR FLOODPLAIN (1% Annual Chance Floodplain) is considered to be inundated by a 100-Year Flood, an event having a 1% chance of being equaled or exceeded in any given year. The 100-Year Flood is also referred to as a 1% Annual Chance Flood.

DEVELOPMENT REGULATIONS

Jefferson County, City of Boulder, and the Town of Whitehall require Floodplain Development Permits for development in the 100-Year Floodplain (Chance Floodplain) to protect human life and property.

- New building construction must obtain a Floodplain Development Permit.
- New residential construction must be elevated 2 feet above the 100-Year Flood Elevation (Base Flood Elevation).
- Improvements to existing structures must obtain a Floodplain Development Permit. Existing structures greater than 50% of a structure's market value (determined by a professional appraiser) must be brought into compliance with floodplain regulations.
- Other federal, state, and local regulations may apply.

Draft floodplain maps are going through review and are not yet effective. Please contact your community's floodplain regulations with County, City, or Town staff to understand updates on proposed construction projects in a mapped floodplain.

INSURANCE REQUIREMENT

If you own a building in an area that will be newly mapped into a 100-Year Floodplain, contact your insurance agent or lender about flood insurance.

Lenders will typically reevaluate their loans to reassess flood risk when a new flood map or revision goes effective. When this happens, your lender will require you to carry flood insurance if you own a building that is located in a mapped floodplain. You can prove that the building is above the flood elevation or outside of the 100-Year Floodplain.

There can be some cost-saving options available if you are newly mapped into a 100-Year Floodplain. Contact your insurance agent or lender as early as possible to find the best flood insurance option available to you—ask for a comparison of Newly Mapped rates, Grandfathered rates, etc.

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Tiffany Lyden & Nadene Wadsworth
MT Dept of Natural Resources and Conservation
tlyden@mt.gov nadene.wadsworth@mt.gov
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JEFFERSON COUNTY FLOOD MAP UPDATES

www.floodplain.mt.gov/jefferson

Owning property in a FLOODWAY

A FLOODWAY is the area within a 100-Year Floodplain that must be kept free of obstructions so that the 100-Year Flood (1% Annual Chance Flood, Base Flood) can be discharged without increases in flood heights. The Floodway will usually see the highest water inundation during a 100-Year Flood event.

DEVELOPMENT REGULATIONS

Jefferson County, City of Boulder, and the Town of Whitehall strictly regulate development in Floodways to protect human life and property by ensuring that there are no increases in flood elevations.

In accordance with each community's Floodplain Regulations:

- New building construction is not permitted in the Floodway.
- Improvement to existing structures in a Floodway must obtain a Floodplain Development Permit.

INSURANCE REQUIREMENT

If you own a building in an area that will be newly mapped into a 100-Year Floodplain (including Floodway), contact your insurance agent or lender about flood insurance.

Lenders will typically reevaluate their loans to reassess flood risk when a new flood map or revision goes effective. When this happens, your lender will require you to carry flood insurance if you own a building that is located in a mapped floodplain, unless you can prove that the building is above the flood elevation or outside of the 100-Year Floodplain.

There can be cost-saving options available if you are newly mapped into a 100-Year Floodplain. Contact your insurance agent or lender as early as possible to find the best flood insurance option available to you—ask for a comparison of Newly Mapped rates, Grandfathered rates, etc.

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JEFFERSON COUNTY FLOOD MAP UPDATES

www.floodplain.mt.gov/jefferson

Owning property in a 500-YEAR FLOODPLAIN

A 500-YEAR FLOODPLAIN (0.2% Annual Chance Floodplain) is considered to have a MODERATE flood risk. It is an area that is expected to be inundated by a 500-Year Flood, a flood event having a 0.2% chance of being equaled or exceeded in any given year. The 500-Year Flood is also referred to as a 0.2% Annual Chance Flood.

DEVELOPMENT REGULATIONS

Jefferson County, City of Boulder, and the Town of Whitehall do not regulate development in the 500-Year Floodplain (0.2% Annual Chance Floodplain) although flooding is still possible in this area.

New construction and building improvements may occur in the 500-Year Floodplain without a Floodplain Development Permit. Other federal, state, and local regulations may apply.

If your property has areas of both 100-Year and 500-Year Floodplain, proposed projects may require a Floodplain Development Permit depending on exactly where the development will occur. It is important to discuss the location of any development with County, City or Town staff to understand the impacts of the community's floodplain regulations and flood map updates on proposed projects in or near a mapped 100-Year Floodplain.

INSURANCE REQUIREMENT

If you own a building in a 500-Year Floodplain (0.2% Annual Chance Floodplain), you are considered to be at a moderate risk of flooding. It is therefore recommended that you purchase flood insurance even if your lender does not require you to do so in order to protect your investment.

Lenders will typically review their loans to reassess flood risk when a new flood map or revision goes effective. When this happens, if your building is located in a 500-Year Floodplain, your lender might choose to require you to carry flood insurance and/or provide building elevation documentation to prove your building is above the flood elevation.

Some property owners may not see any insurance changes with this mapping update. Talk to your lender or insurance agent early if you are considering purchasing flood insurance in order to find the best option for you.

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Development Regulations

Counties and Towns have floodplain regulations that regulate new development within the 100-year floodplain.

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

New construction and additions- elevated 2' **Improvements** and additions to existing structures $\geq 50\%$ of building's value, will require the entire structure to be brought into compliance.

No new structures and limited development is allowed in the **Floodway**



Flood Insurance

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

Flood insurance is not mandatory in a lower risk areas, but is highly recommended. Lenders can always require insurance in any area.

Landowners can buy **flood insurance** to protect their assets; renters can buy **flood insurance** for contents.

Flood insurance is the best form of personal risk management and provides important economic protection for flooding.

Discounted rates available for newly mapped areas, within 1 year of maps becoming effective.



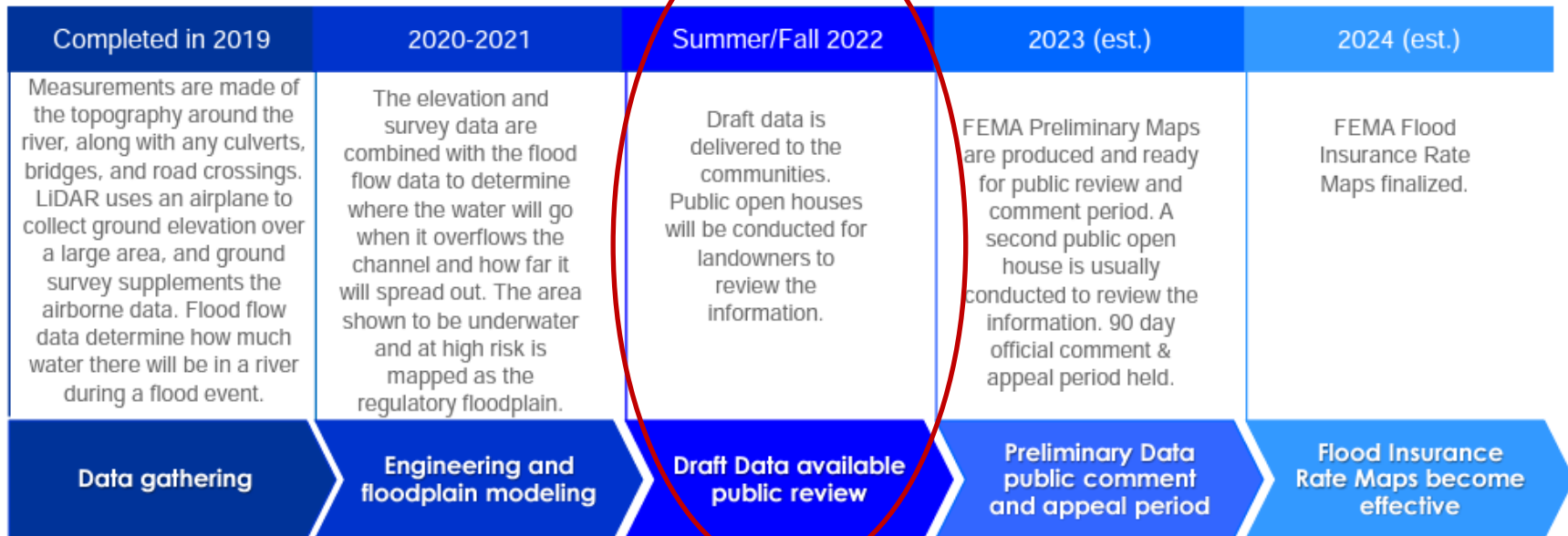
Estimated Timeline

www.floodplain.mt.gov/jefferson



Project Timeline

Jefferson County Floodplain Maps Update



Flood Study Conducted

- 4 steps of a flood study.
- 1) Survey & LIDAR
 - 2) Hydrology (flood flow)
 - 3) Hydraulics (engineering)
 - 4) Mapping (delineation)

Public Review

2 public open houses are usually held during this time. Once at draft map stage and again at preliminary map stage.
During this time public comments are encouraged. There will be a 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.

Thank You | Staff You Can Speak With

JEFFERSON COUNTY

Megan Bullock

County Sanitarian and Floodplain Administrator



JEFFERSON COUNTY
MONTANA

TOWN OF WHITEHALL

Allissa Christensen

Town Clerk/Treasurer and Floodplain Administrator



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Thank you

