New Mexico's Risk MAP Program

Upper Rio Grande Watershed Discovery

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FEMA

Upper Rio Grande Watershed Discovery Meeting Protocol

- Please put your name, community, email address and your interest in this meeting in the chat box.
- Please mute your line
- Type questions in the chat box
- Thank you for attending

Rio Grande River at high water stage, Velarde, New Mexico, 1937. Courtesy of the Palace of the Governors Photo Archives (NMHM/DCA), Negative No. 147563.

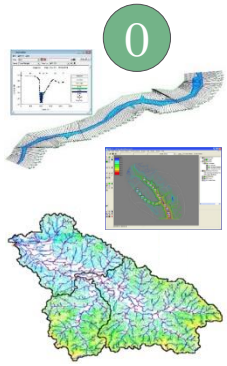
Agenda

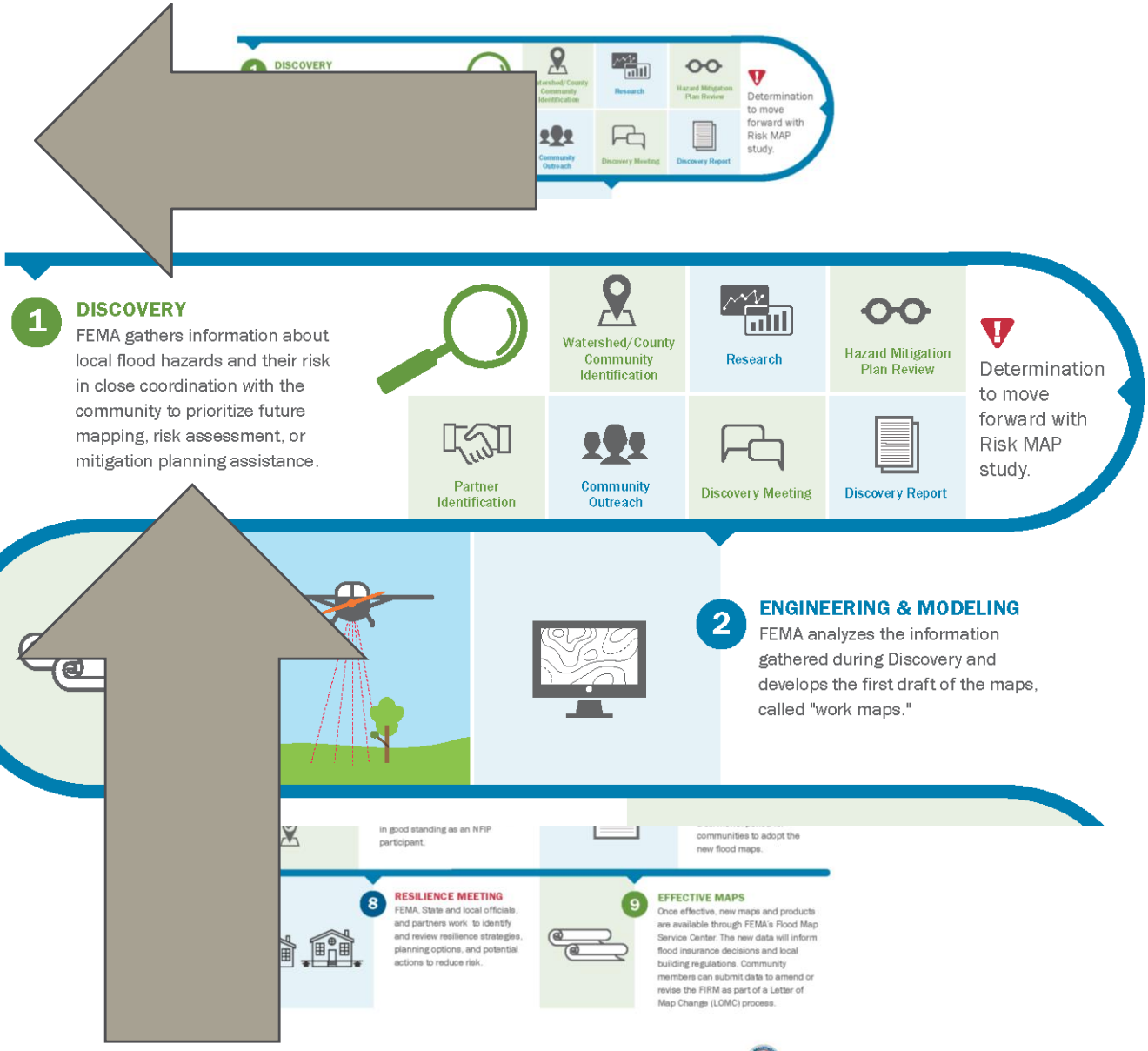
- What is Risk MAP?
- Base Level Engineering
- Discovery
- Why is Discovery Important?
- Upper Rio Grande Watershed history
- Data to be Collected from the Community
- Next Steps

What is Risk MAP?

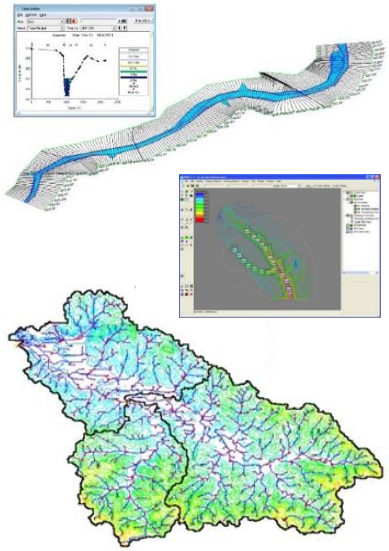
- Mapping – Identification of areas of natural hazard risk
- Assessment – Review and analysis of hazard areas
- Planning – Mitigation activities to reduce risk

Risk Map Process

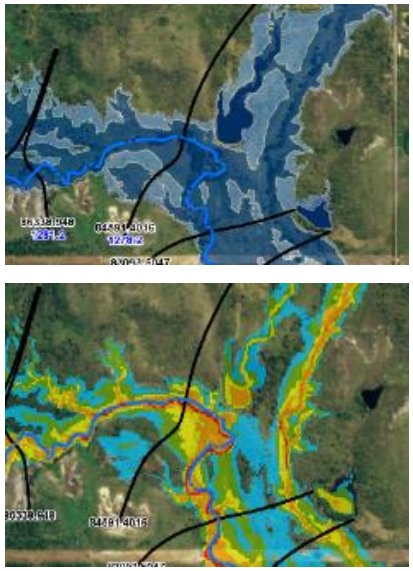




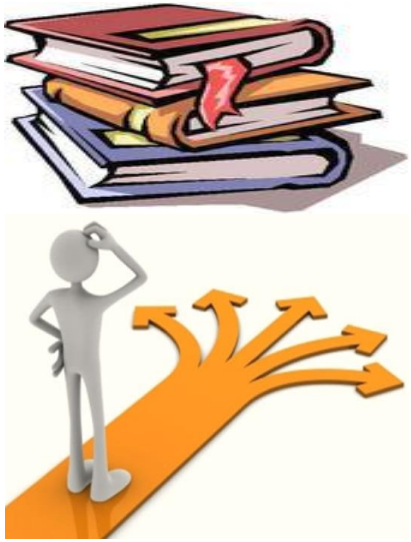
Base Level Engineering provides:



Credible engineering analysis and modeling for local communities and developers.



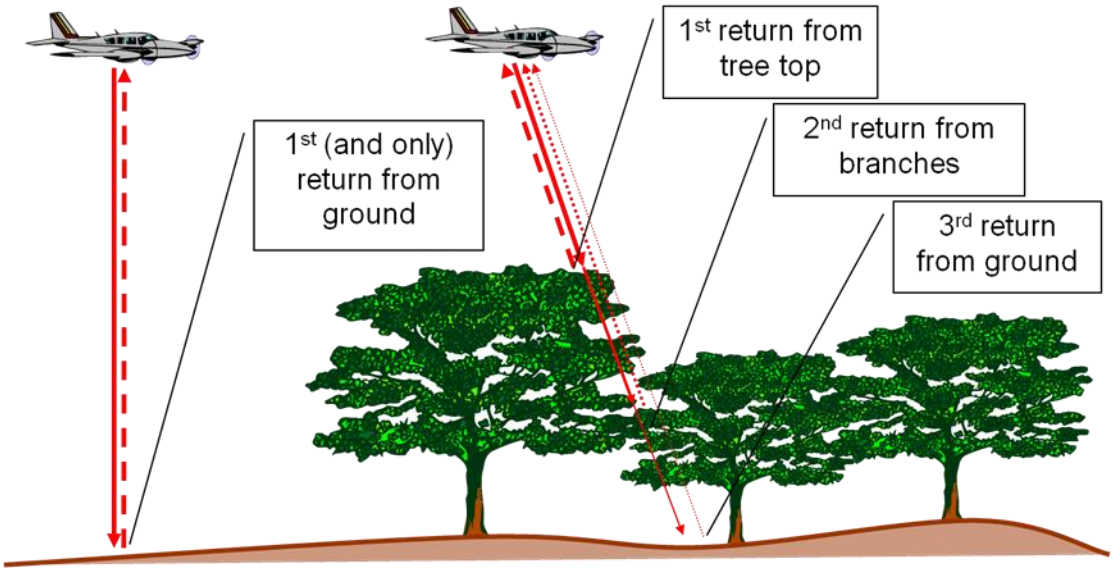
Estimation of flood extents, water surface elevations and flood depths



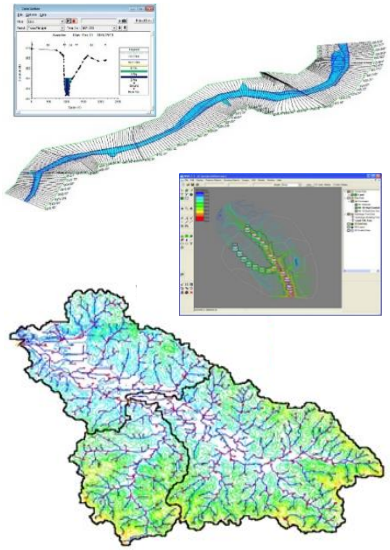
May be adopted as Best Available Information (BAI) by communities & inform development decisions.

Base Level Engineering

- 2016 QL-2 Lidar collected



- 2019 Base Level Engineering



Creating Base Level Engineering Data

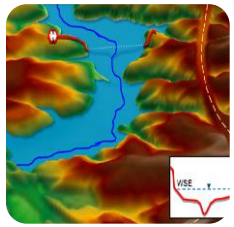
Terrain Data Collection

Is ground elevation Information readily-Available, or must it be Collected?

Hydrology

How much water are we talking about?

When will it get here?



Hydraulics

How does it react in the stream?

Floodplain Mapping

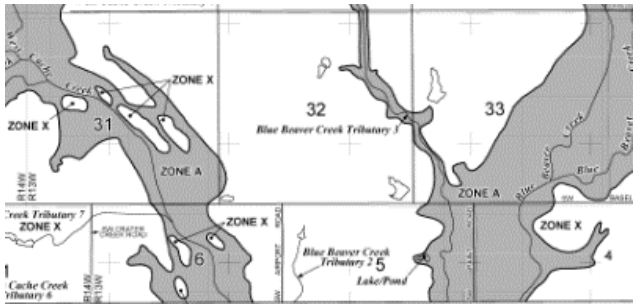
What areas are impacted?

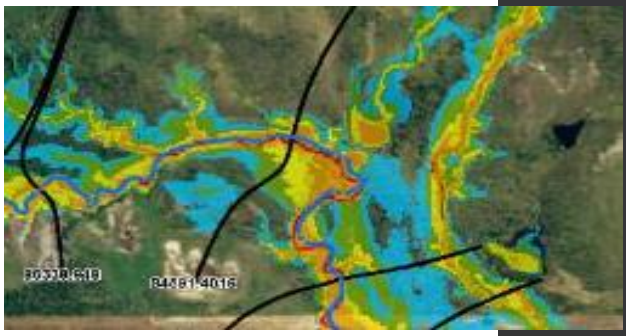
Approach

- FEMA has devised both a 1D and 2D modeling approach
- High Resolution Ground Data required
- Manual revisions to input cross-sections or grids during modeling
- Cross-sections added near structures
- Human Investigation of results prior to FIRM mapping

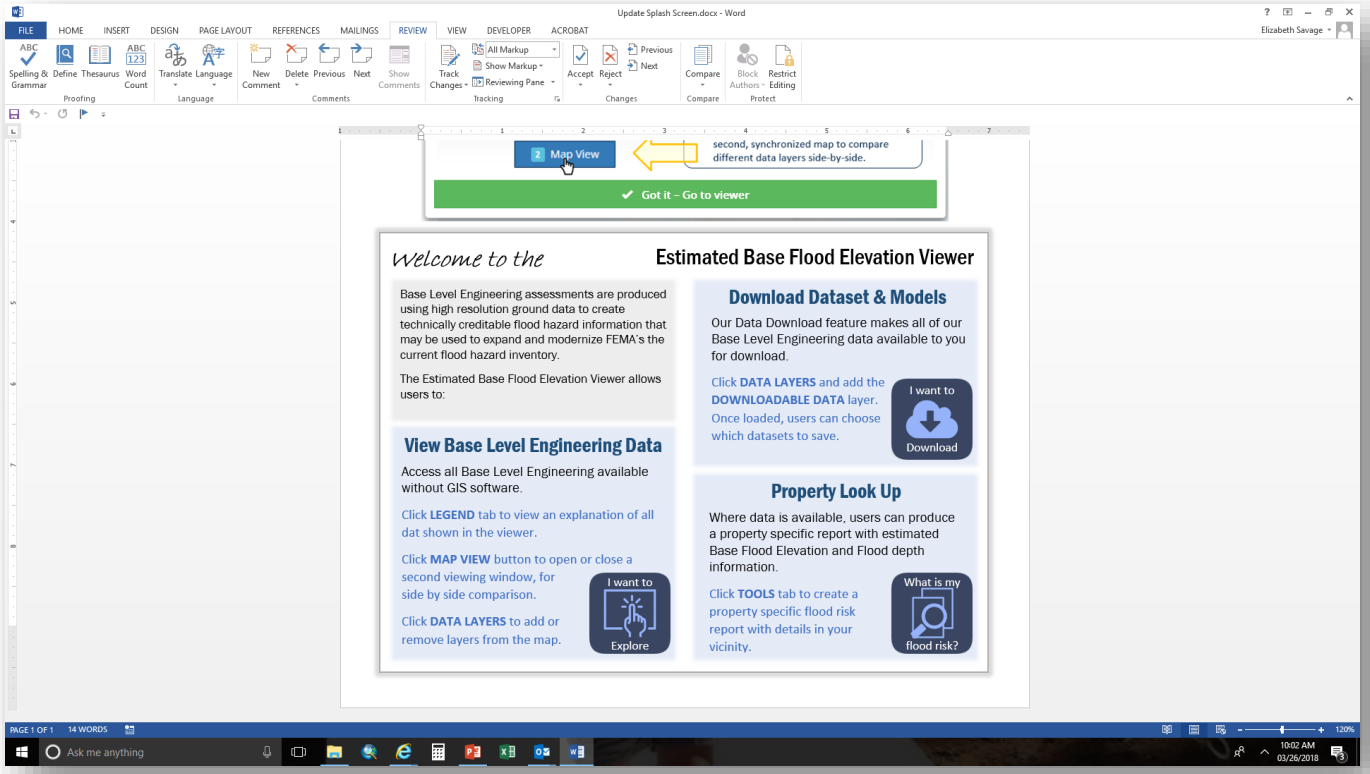
Deliverables

- Hydraulic Engineering Models (10%, 4%, 2%, 1%, 1%+, 1%-, and 0.2%)
- Estimated Flood Extents (10%, 1% and 0.2%)
- Estimated Water Surface Grids (1% and 0.2%)
- Estimated Flood Depth Grids (1% and 0.2%)
- Hazus Run





FEMA Region 6 BFE Viewer



https://webapps.usgs.gov/infrm/estbfe/

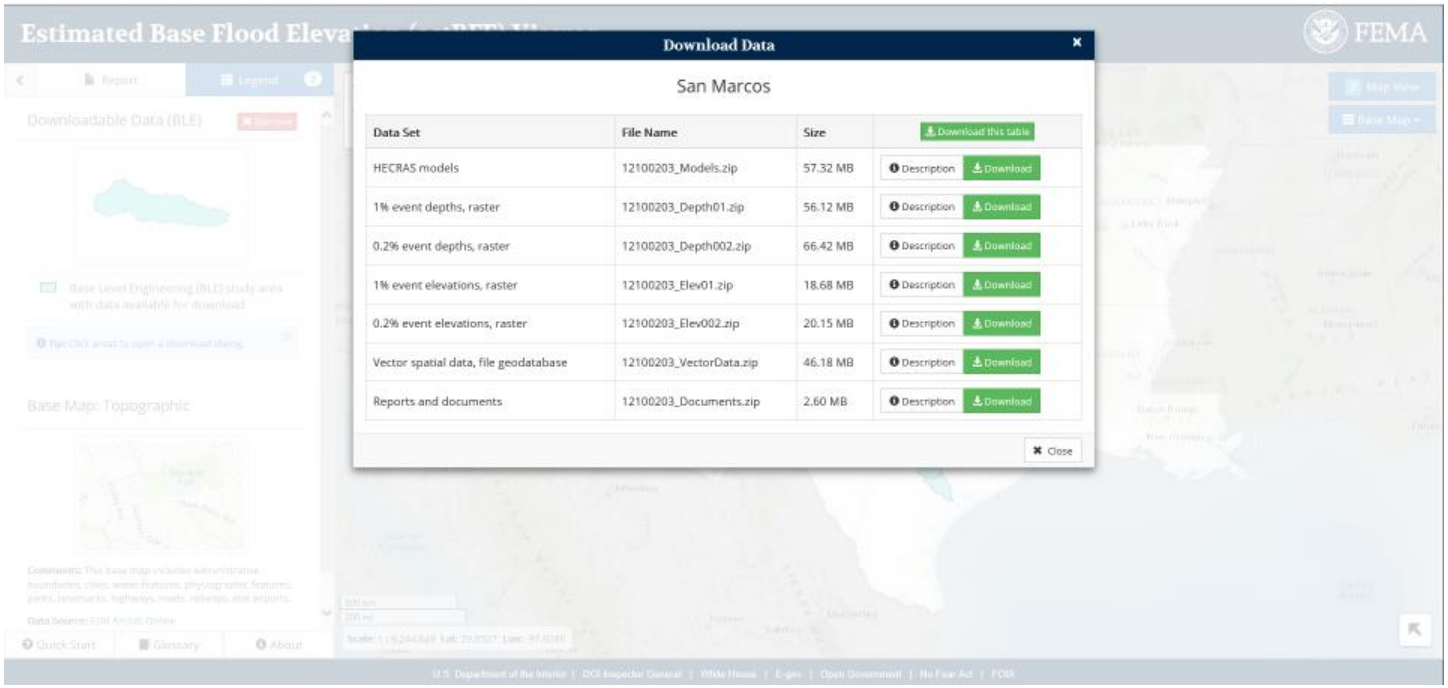
Estimated Base Flood Elevation Viewer

1% and 0.2%
Estimated Flood Extent

1%
Estimated Flood Depth

https://webapps.usgs.gov/infrm/estbfe/

Download the Data



www.InFRM.us/estBFE

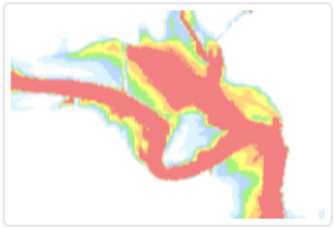
Estimated Base Flood Elevation (estBFE) Viewer

FEMA

Report | Legend 2

Flood Depth (1%)

Remove



≤ 1 foot	> 3 to 4 feet
> 1 to 2 feet	> 4 to 5 feet
> 2 to 3 feet	> 5 feet

Comments: Depicts estimated water depths above land surface during a 1% annual chance storm event (a storm that has a 1/100 chance of occurring in any calendar year).

Base Map: Dark

Comments: This base map provides a dark, neutral background with minimal colors, labels, and features to give primary focus to the data layer content.

Data Source: ESRI ArcGIS Online

Quick Start | Glossary | About

Data Layers | 2 Map View | Base Map

Farmington
Santa Fe
Gallup
Albuquerque
Amarillo
NEW MEXICO
Lubbock
Roswell
Carlsbad
Las Cruces
Midland
Odessa
El Paso
Juarez
Nuevo Casas Grandes

200 km
100 mi
Scale: 1 : 4,622,325

Risk MAP Discovery

The Goal

To work closely with communities to better understand local flood risk, mitigation efforts, and other topics and spark watershed-wide discussions about increasing resilience to flooding. The Discovery process of FEMA's Risk MAP program helps communities identify areas at risk for flooding and solutions for reducing that risk.

Discovery

Next Step

Risk MAP Discovery

Capturing a More Complete Picture of Your Watershed

Discovery

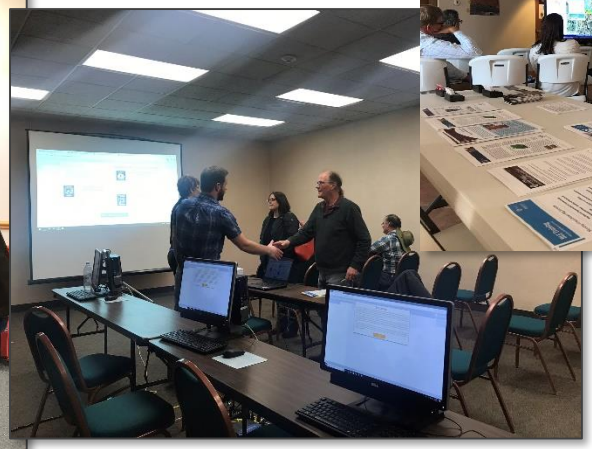
- Holistic view of a geographic area; watersheds cross jurisdictional borders – Ownership of Risk

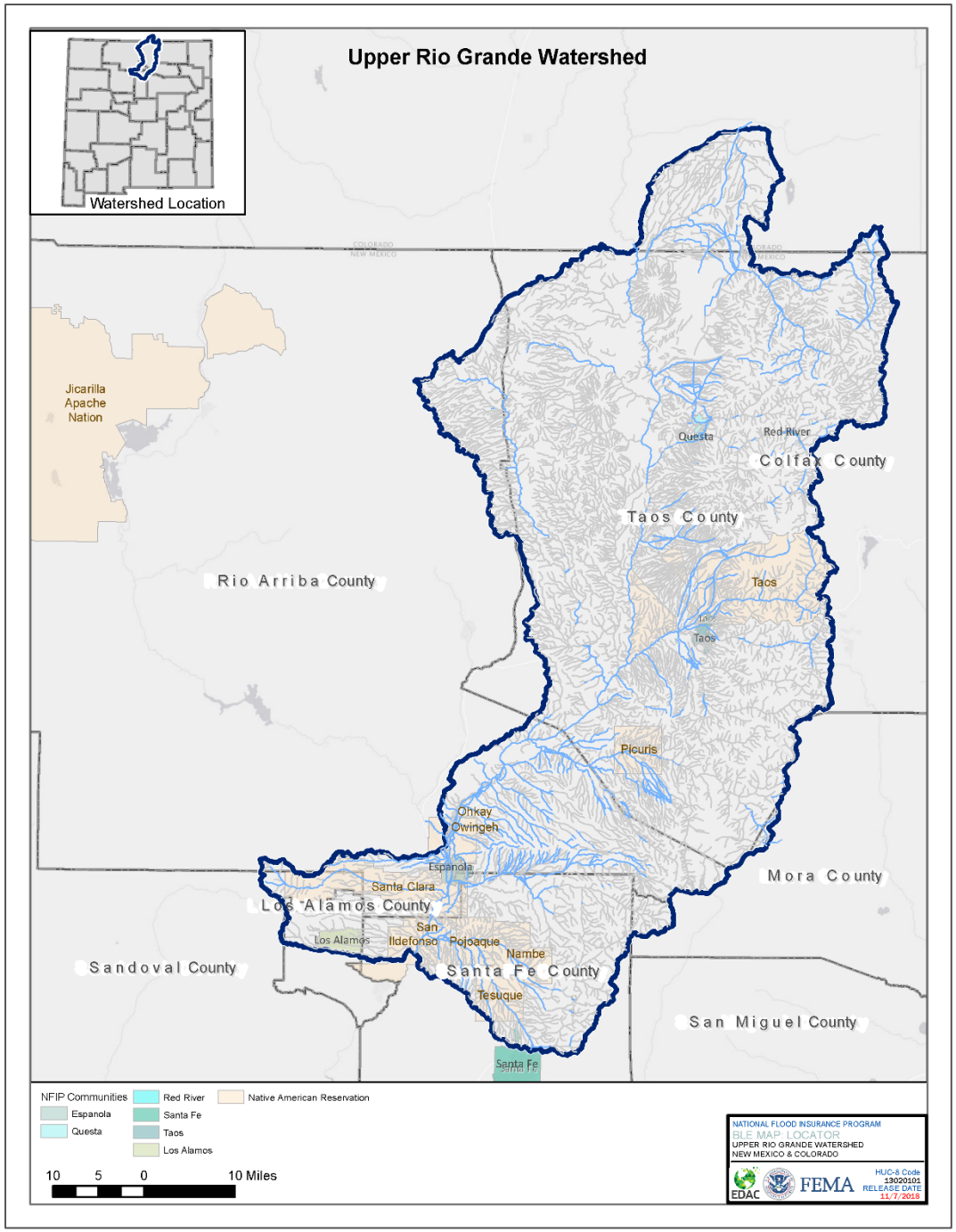
- Develop partnerships, combine resources, share flood risk information, develop a vision for the watershed – Whole Community

- Identifying and empowering communities to take action to reduce their flood risk - Resiliency

Why is Discovery Important?

- Provide flood risk information
- Know your risk
- Review Mitigation Plans
- Discuss mitigation opportunities



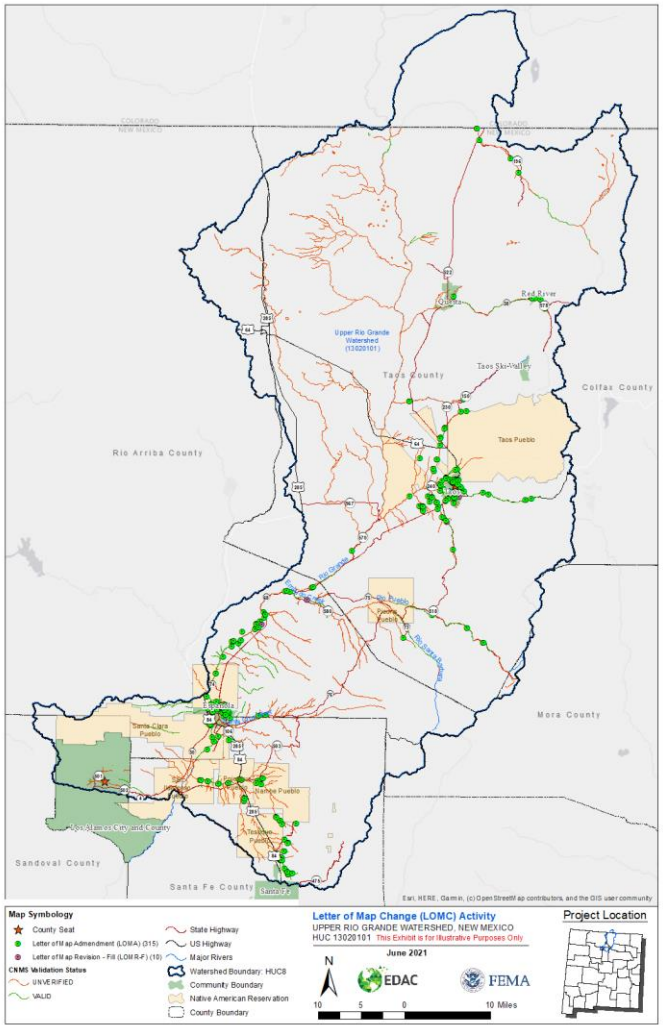


Upper Rio Grande Watershed

History and Local Issues

- Upper Rio Grande Watershed
  - 3,252 square miles
  - 315 LOMA
  - 10 LOMR-F

- NFIP Communities
  - City of Española
  - City of Santa Fe
  - Los Alamos
  - Mora County
  - Rio Arriba County
  - Santa Fe County
  - Sandoval County
  - Taos County
  - Town of Red River
  - Town of Taos
  - Village of Questa



Participants in Discovery

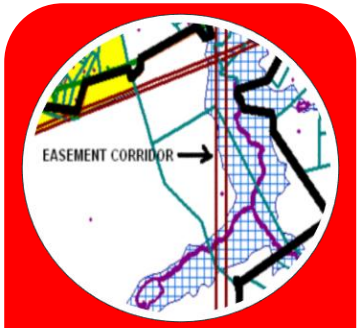
- Loretta Hatch, New Mexico Floodplain Coordinator
- Chelsea Morganti, State Hazard Mitigation Officer
- Brittany Brush, FEMA Region 6
- Shawn L. Penman, NM CTP Coordinator
- Local elected officials
- Regional authorities
- Local floodplain administrators
- Local emergency management officials
- Local watershed groups

What Kind of Information?

- Areas of repeated flooding and insurance claims
- Future development plans
- Areas of low water crossings
- High water marks from recent floods
- Areas of evacuation during high water
- Wildfire perimeters
- Master drainage plans, flood risk reduction projects and large areas of fill placement
- Local Hazard Mitigation Plans
- Other flood risk information

What Mitigation Actions will you take?

- Mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property
  - What are some areas of mitigation interest in your community?



Land Use Ordinances

Local Building Codes

Management Best Practices

Mitigation Projects

Community Identified Mitigation Programs

Discovery Resources

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COLLECTION

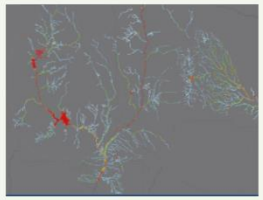
Upper Rio Grande Watershed Discovery

The goal of Discovery is to gain a holistic picture of the flood hazards within watershed, collect data to validate the flood risks, identify opportunities to facilitate mitigation planning, and identify actions to reduce flood risk in watershed.

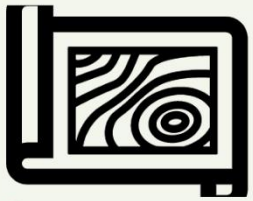
Get started

1 Upper Rio Grande Watershed Map

2 Discovery Process



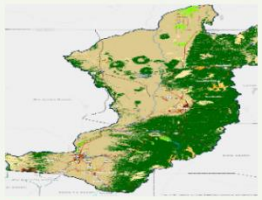
3 Base Level Engineering



4 Hazards Data Collection

5 Hazard Mitigation

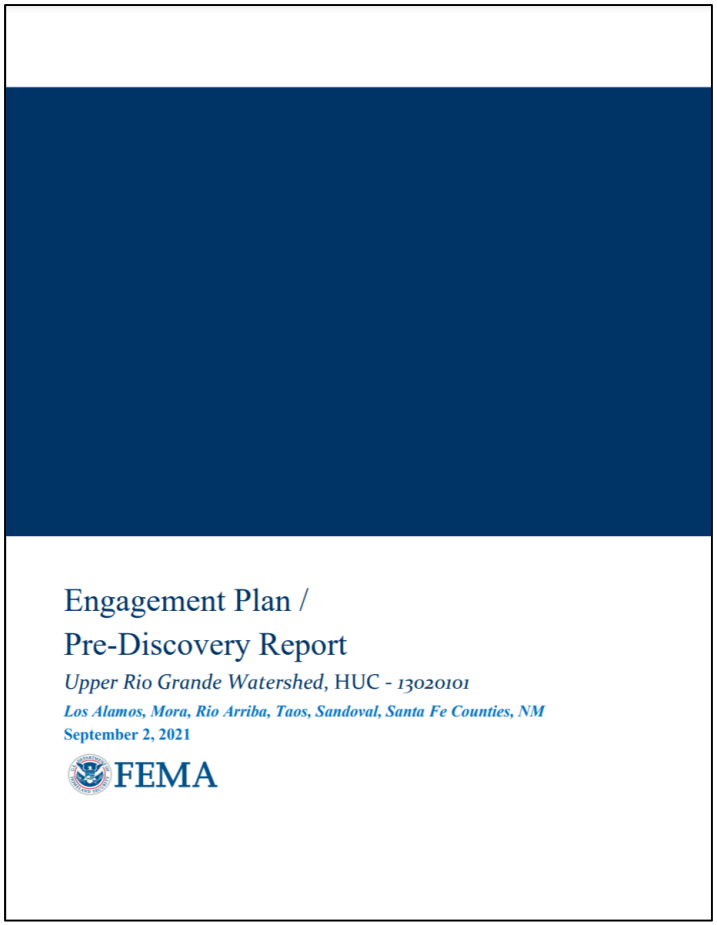
6 Flood Insurance



7 Upper Rio Grande Discovery Maps

https://arcg.is/1zzbDq0

Pre-Discovery Report

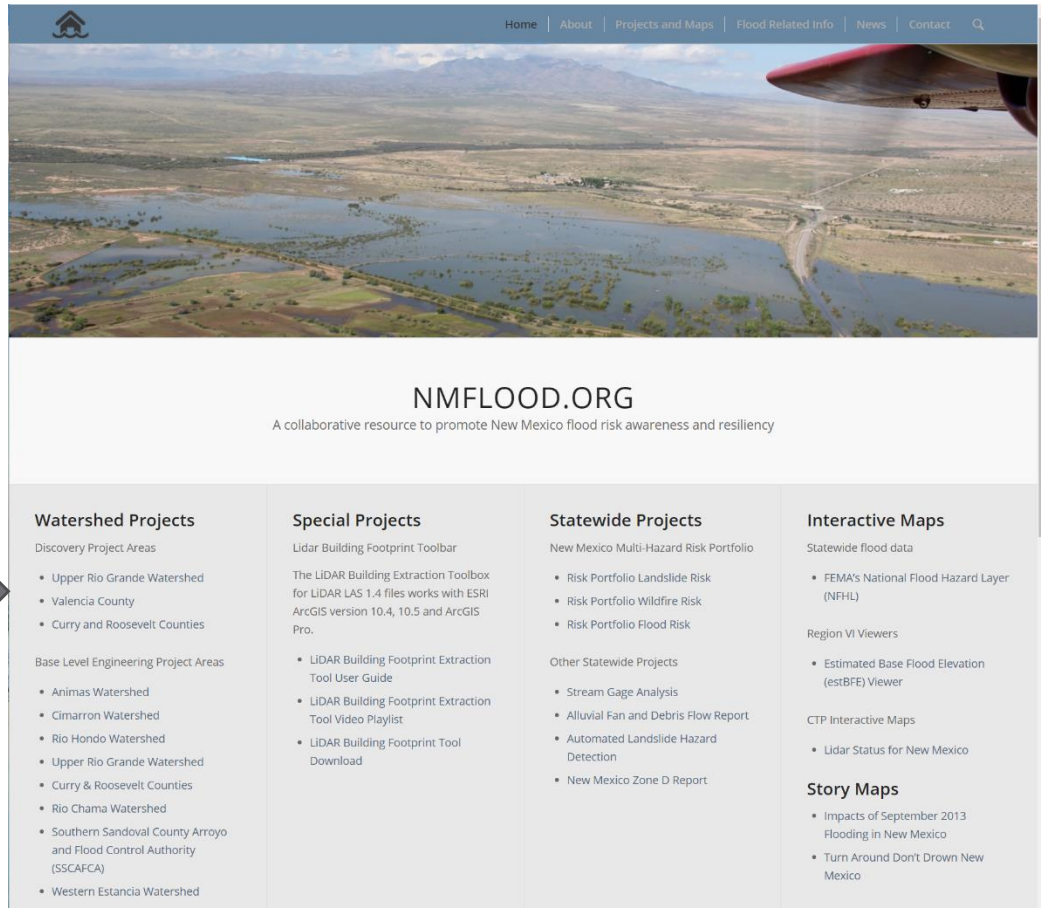


https://edac.unm.edu/projects/nmflood/Upper_Rio_Grande_PreDiscovery_Report.pdf

Next Steps

- Discovery Findings Meeting
  - Report on information gathered
  - Mitigation activities
- Information gathered will help the communities make better informed decisions to address the flood hazard risks that are identified

NMFLOOD.org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NMFLOOD.ORG
A collaborative resource to promote New Mexico flood risk awareness and resiliency
Watershed Projects
Discovery Project Areas
Upper Rio Grande Watershed
Valencia County
Curry and Roosevelt Counties
Base Level Engineering Project Areas
Animas Watershed
Cimarron Watershed
Rio Hondo Watershed
Upper Rio Grande Watershed
Curry & Roosevelt Counties
Rio Chama Watershed
Southern Sandoval County Arroyo and Flood Control Authority (SSCAFCA)
Western Estancia Watershed
Special Projects
Lidar Building Footprint Toolbar
The LiDAR Building Extraction Toolbox for LiDAR LAS 1.4 files works with ESRI ArcGIS version 10.4, 10.5 and ArcGIS Pro.
LiDAR Building Footprint Extraction Tool User Guide
LiDAR Building Footprint Extraction Tool Video Playlist
LiDAR Building Footprint Tool Download
Statewide Projects
New Mexico Multi-Hazard Risk Portfolio
Risk Portfolio Landslide Risk
Risk Portfolio Wildfire Risk
Risk Portfolio Flood Risk
Other Statewide Projects
Stream Gage Analysis
Alluvial Fan and Debris Flow Report
Automated Landslide Hazard Detection
New Mexico Zone D Report
Interactive Maps
Statewide flood data
FEMA's National Flood Hazard Layer (NFHL)
Region VI Viewers
Estimated Base Flood Elevation (estBFE) Viewer
CTP Interactive Maps
Lidar Status for New Mexico
Story Maps
Impacts of September 2013 Flooding in New Mexico
Turn Around Don't Drown New Mexico

Questions?

Upper Rio Grande Watershed

Discovery Meeting

September 2, 2021

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