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# Teton Watershed Flood Study

June 11, 2014

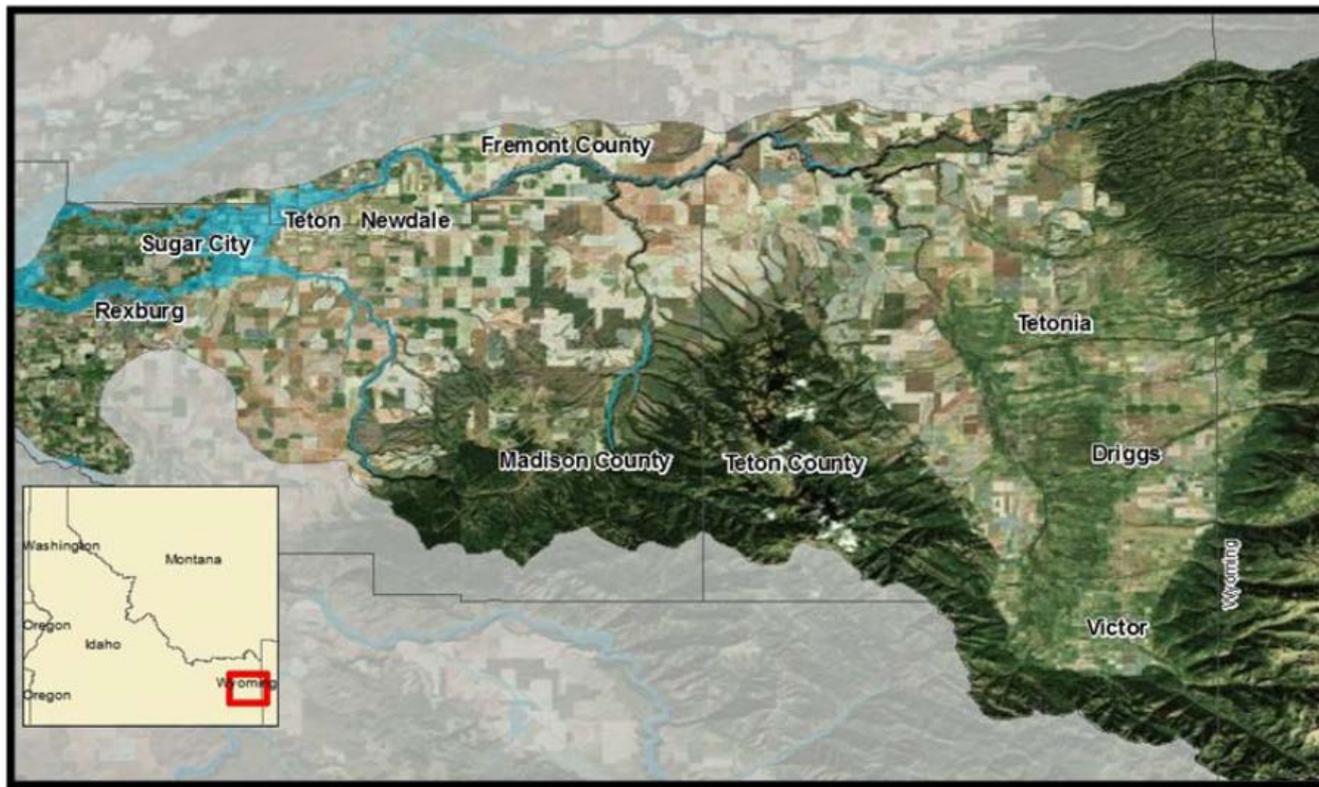
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# Today's Objective

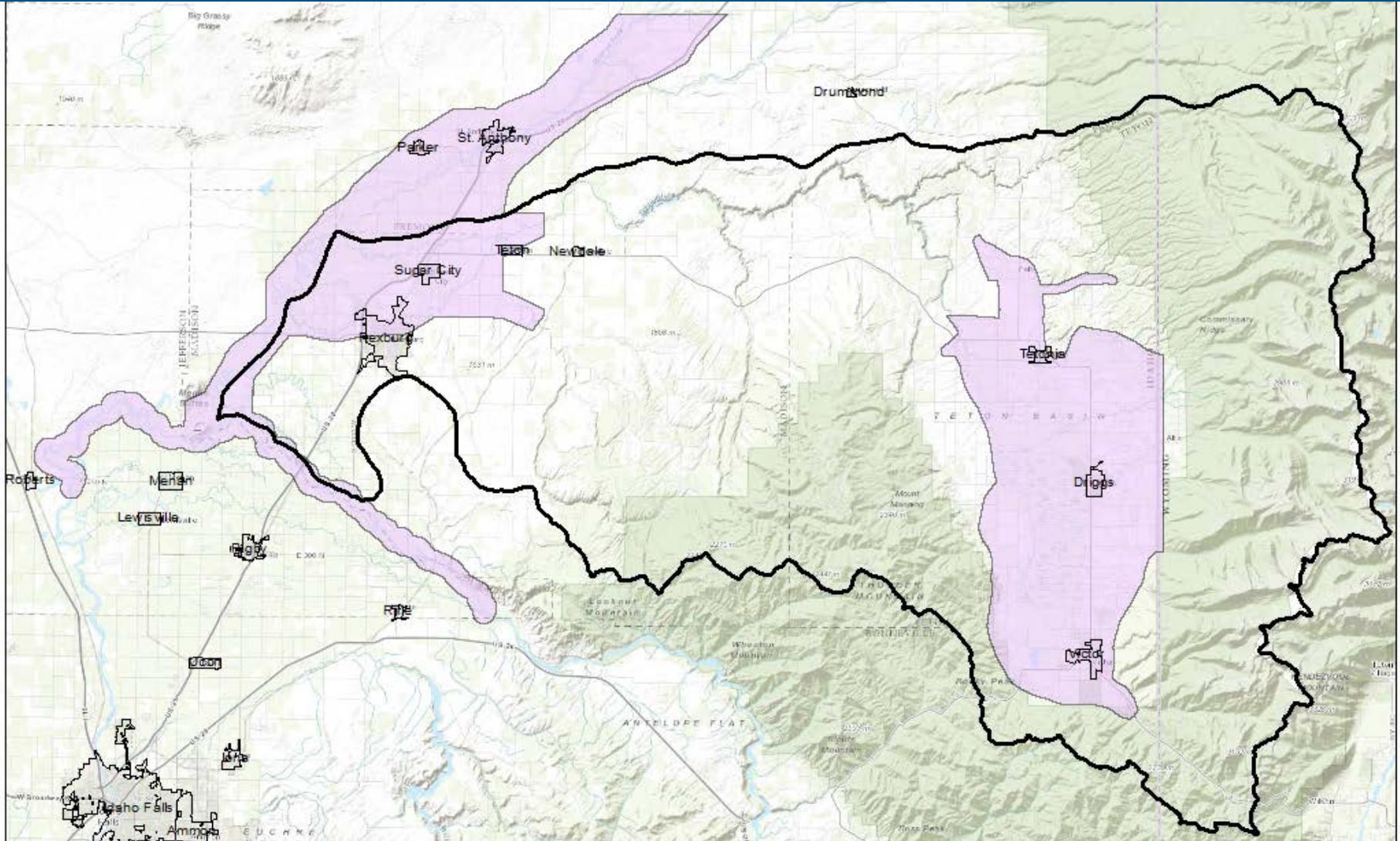
- **Review finalized Study Scope**
- **Provide Overview of Risk Assessment Products**
- **Review Partnership Agreement**

# Teton Discovery



- Discovery Meeting held April 28, 2011
- Communities Identified Areas which required an updated study
- FEMA Discussed Risk Assessment Products
- Communities identified mitigation and training needs

# Teton LiDAR



# Idaho Risk MAP Program



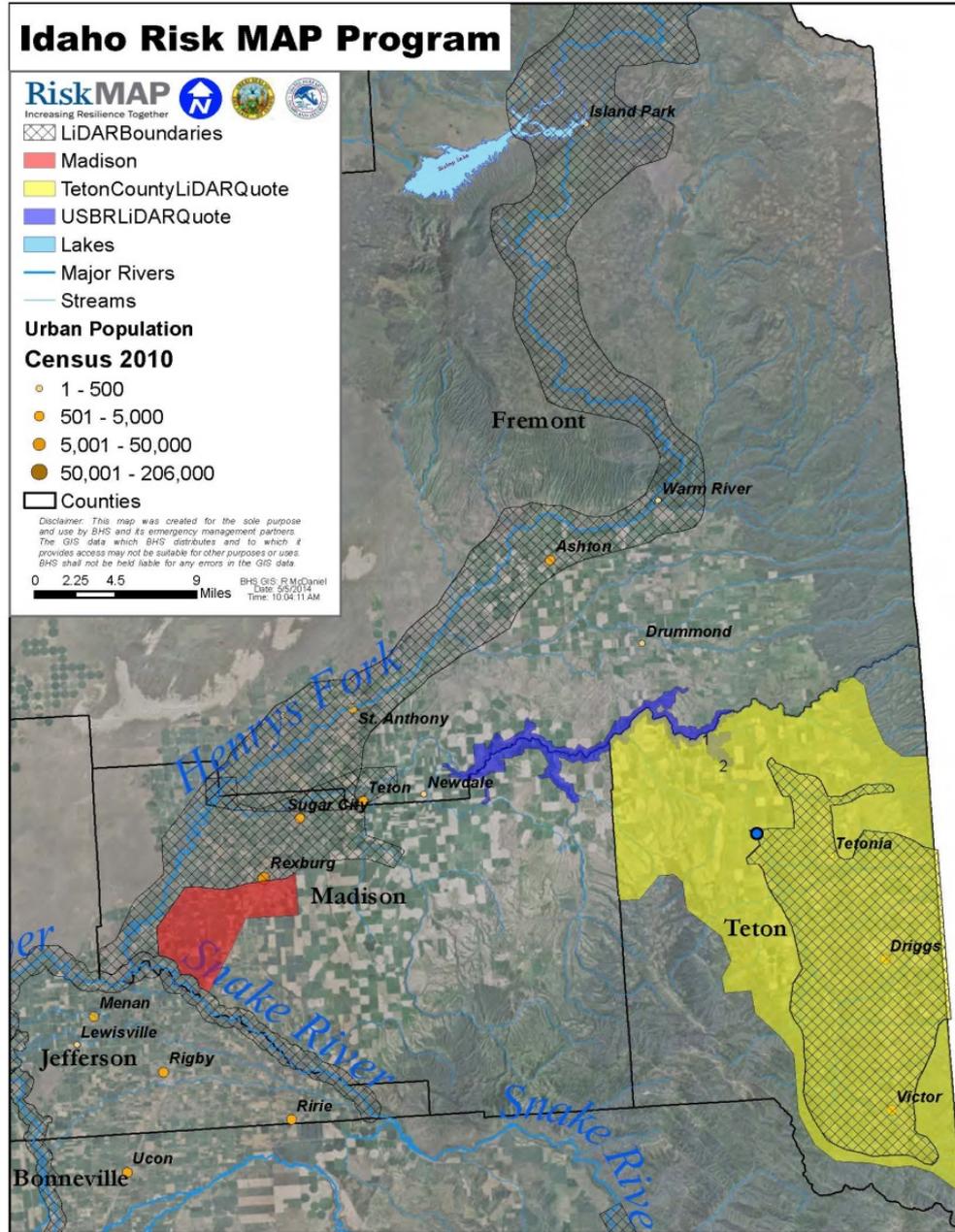
- LiDAR Boundaries
- Madison
- Teton County LiDAR Quote
- USBR LiDAR Quote
- Lakes
- Major Rivers
- Streams

## Urban Population Census 2010

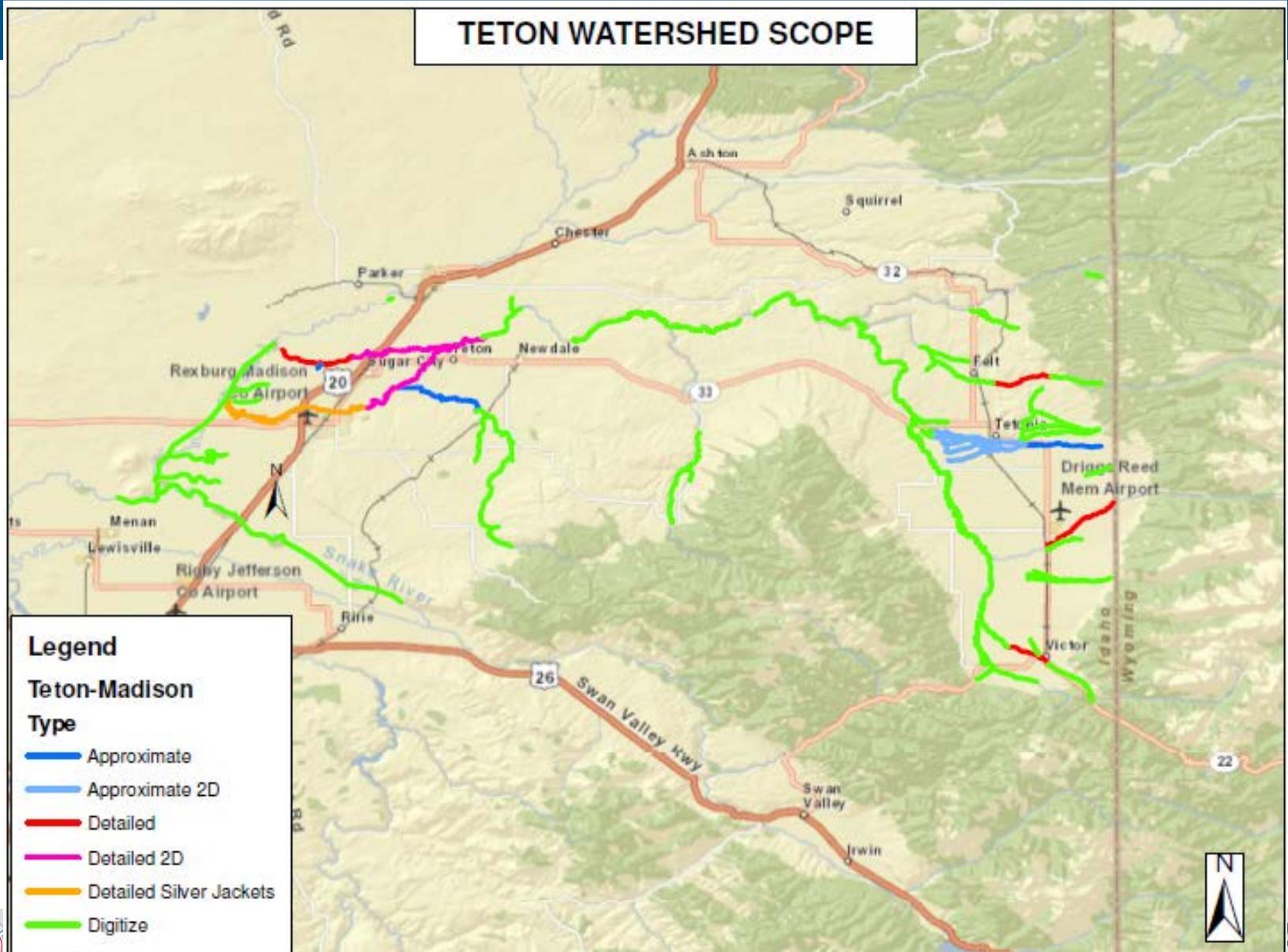
- 1 - 500
- 501 - 5,000
- 5,001 - 50,000
- 50,001 - 206,000
- Counties

Disclaimer: This map was created for the sole purpose and use by BHS and its emergency management partners. The GIS data which BHS distributes and to which it provides access may not be suitable for other purposes or uses. BHS shall not be held liable for any errors in the GIS data.

0 2.25 4.5 9 Miles BHS GIS: S. McDaniel Date: 5/5/2014 Time: 10:04:11 AM

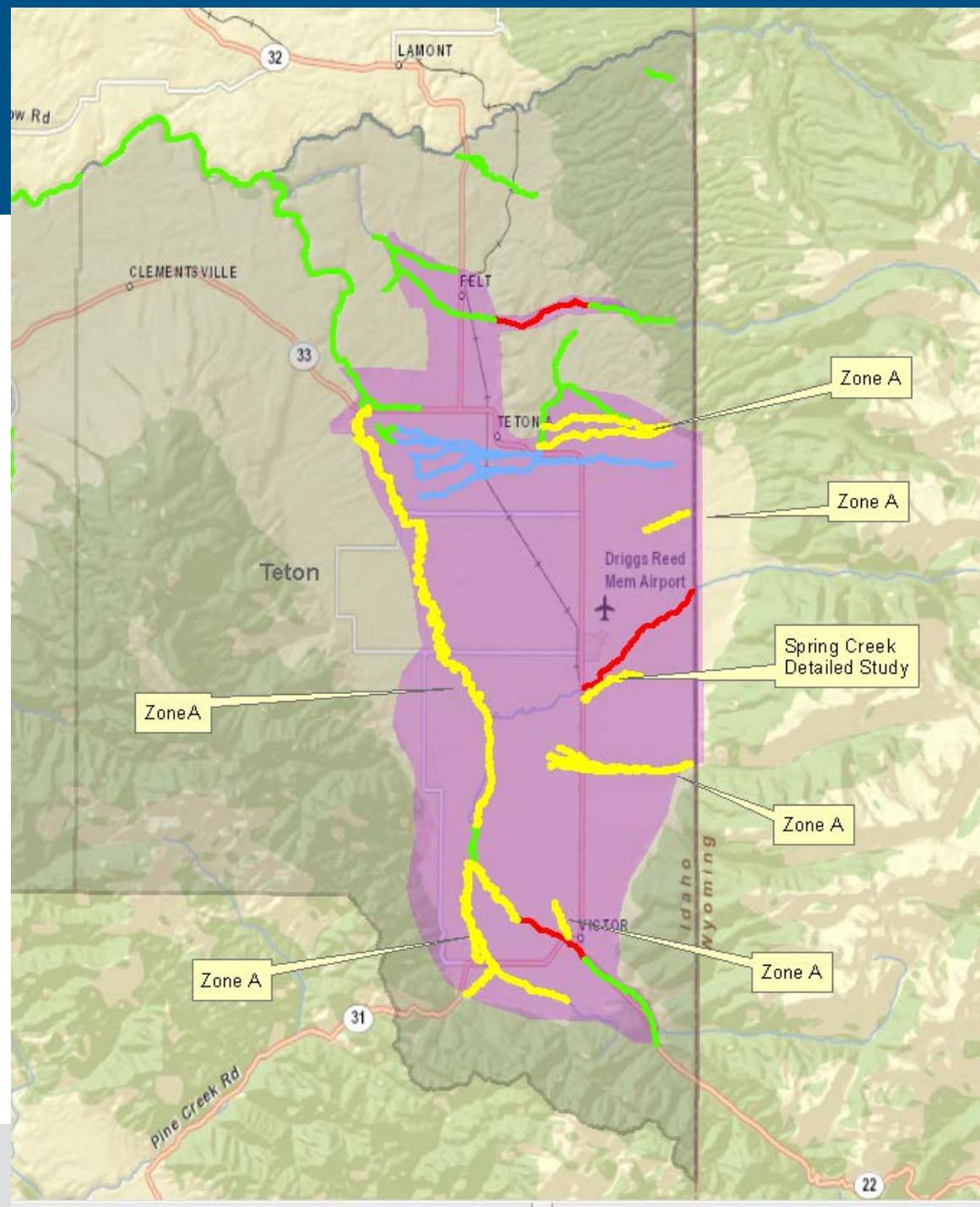


# Study Scope



# Additional Scope?

- **Spring Creek – 2.0 miles, New Detailed Study**
- **Additional Approximate A – About 52 miles**



# Study Scope

## Current Scope

- **Lidar and Aerial Imagery**
  - July, 2011 (Teton)
  - June 2009 (Madison)
- **Detailed Studies: 44.6 Miles**
  - Badger Creek
  - Teton River (North and South Fork)
  - Teton Creek
  - Trail Creek
- **Approximate Studies: 31 miles**
  - Moody Creek
  - Spring Creek

## Additional Scope

- **Detailed Studies: 2.0 Miles**
  - Spring Creek
- **Approximate Studies: 52 miles**
  - Darby Creek
  - Dick Creek
  - Foster Slough
  - Little Pine Creek
  - North Leigh Creek
  - Teton River
  - Warm Creek

# Schedule Forward

- **Flood Study Review Meeting (Early Spring 2015)** – The input data, methodology, and draft flood maps will be presented to the communities. Hydrology expected this summer. Hydraulics anticipated early next year.
- **Preliminary Map Release (Summer/Fall 2015)**
- **Final CCO Meeting (Summer/Fall 2015)** – The preliminary flood insurance study is reviewed and discussed with community officials. A public meeting can then be held afterwards to present the maps to the public. Appeal period typically starts shortly after the public meeting.
- **Resiliency Meeting (Fall 2015)** – The resiliency meeting reviews all of the risk assessment products and will focus on mitigation action



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# Risk Assessment Products

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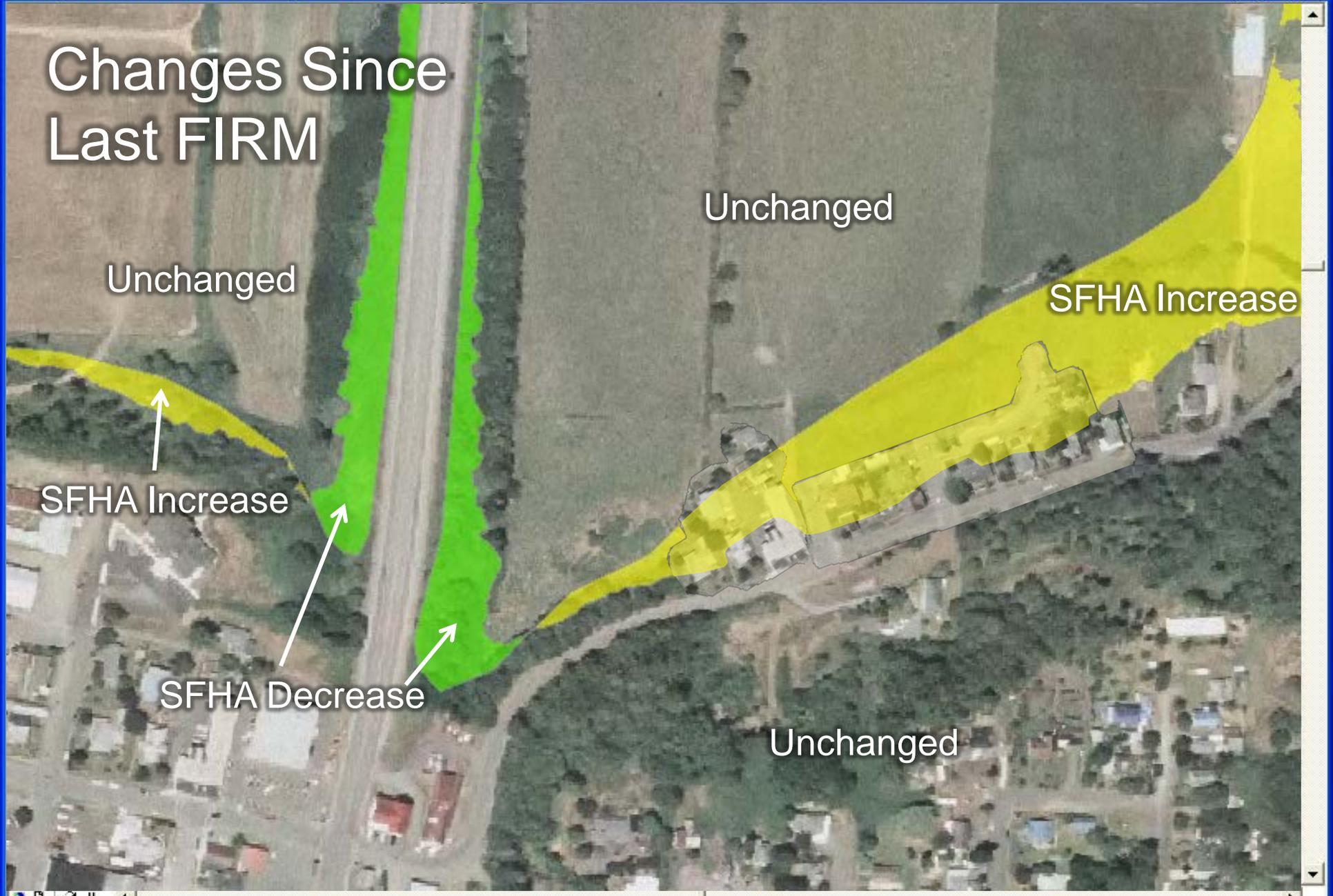
# Changes Since Last FIRM

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# Changes Since Last FIRM



Unchanged

SFHA Increase

Unchanged

SFHA Increase

SFHA Decrease

Unchanged



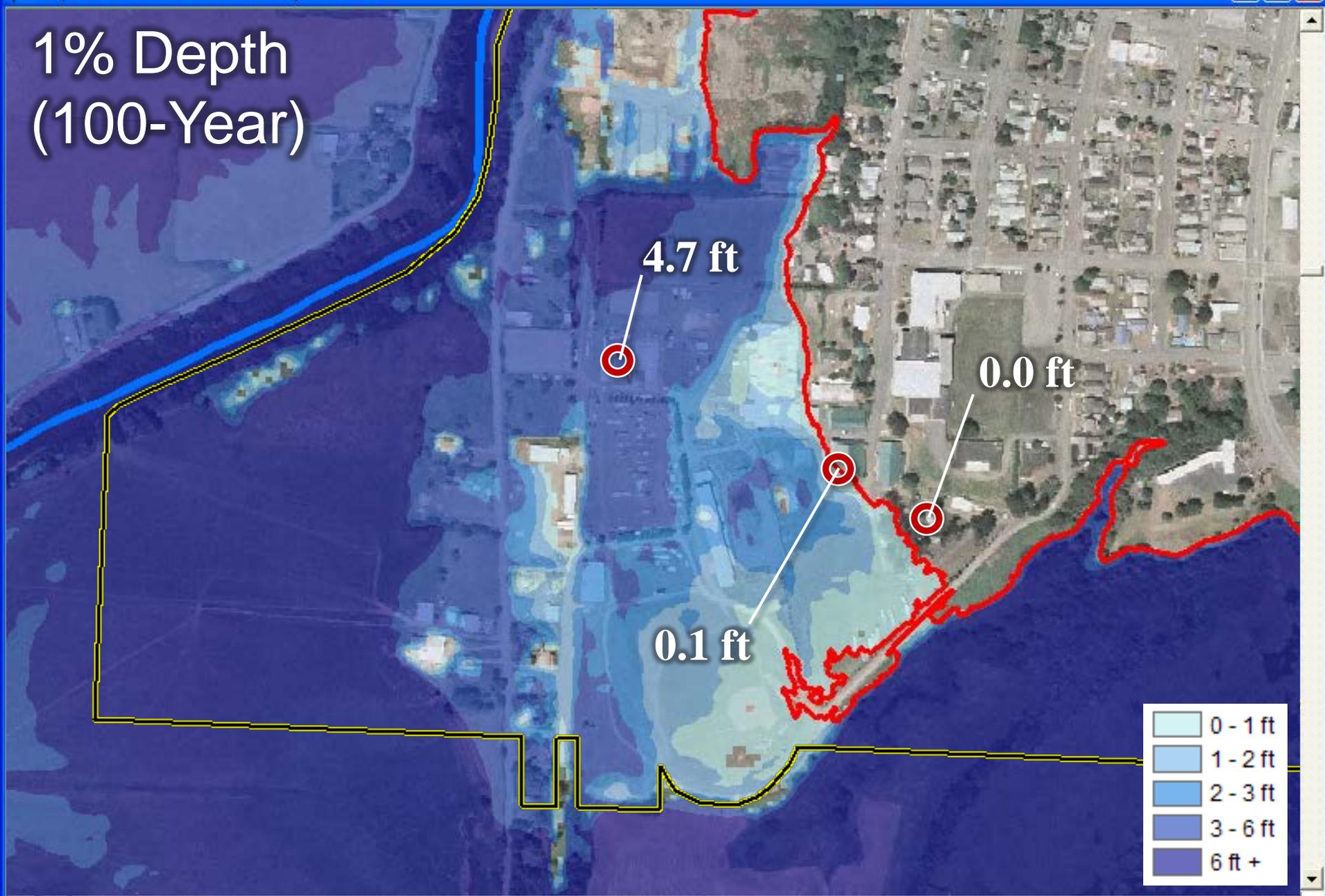
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# Flood Depth Grids

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# 1% Depth (100-Year)



4.7 ft

0.0 ft

0.1 ft

Lightest Blue	0 - 1 ft
Light Blue	1 - 2 ft
Medium Blue	2 - 3 ft
Dark Blue	3 - 6 ft
Darkest Purple	6 ft +



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# Risk Report



## Risk Report

For Teton Watershed study area: Cities of Driggs, Newdale, Rexburg, Sugar City, Teton, and Victor and Fremont, Madison, and Teton Counties

07/13/2012

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# Purpose - Risk Report

- **Risk Assessments for flood and earthquake using Hazus**
- **Deliver Community and Project Level Results**
  - Project Results Summarized by:
    - Communities
- **Provide Information to Augment or Enhance Other Efforts**
  - Local Hazard Mitigation Planning
  - Local Emergency Management Planning
  - Local Master Planning and Building Development

# Risk Assessment

- Risk assessments are completed using Hazus for earthquake and flood
- Will use local parcel/assessors data in assessment if available
- If data is available a building specific assessment may be completed

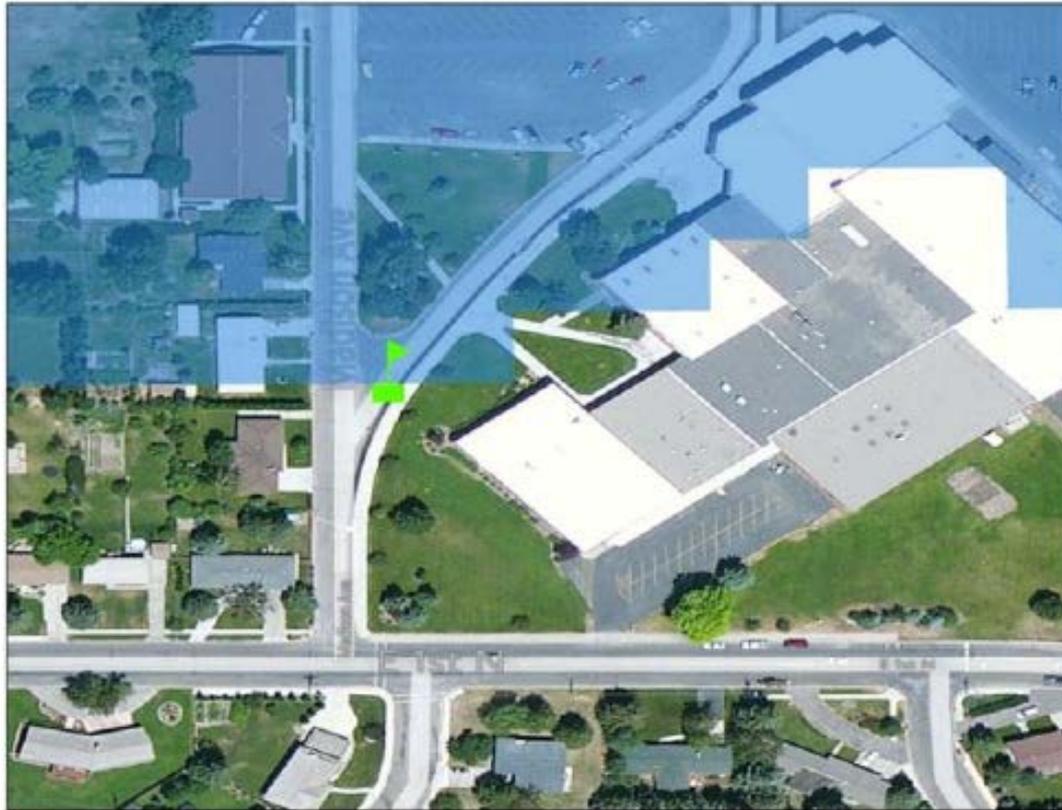
# Hazus Flood Outputs (Rexburg)

Structure Related Losses	Total Inventory		10% (10-yr)		2% (50-yr)		0.5% (200-yr)	
	Estimated Value	Percent of Total	Dollar Losses	Loss Ratio	Dollar Losses	Loss Ratio	Dollar Losses	Loss Ratio
Residential Building/Contents	\$422,044,000	59%	\$13,688,000	38%	\$11,979,000	39%	\$14,275,000	43%
Commercial Building/Contents	\$234,112,000	33%	\$21,289,000	60%	\$18,222,000	59%	\$18,022,000	54%
<b>Total Building/Contents</b>	<b>\$719,716,000</b>	<b>100%</b>	<b>\$35,926,000</b>	<b>5%</b>	<b>\$3,101,8000</b>	<b>4%</b>	<b>\$33,116,000</b>	<b>5%</b>

Population Impacts	10% (10-yr)	2% (50-yr)	0.5% (200-yr)
Shelter Needs	1150	1345	1143
Displaced Population	1310	1548	1318

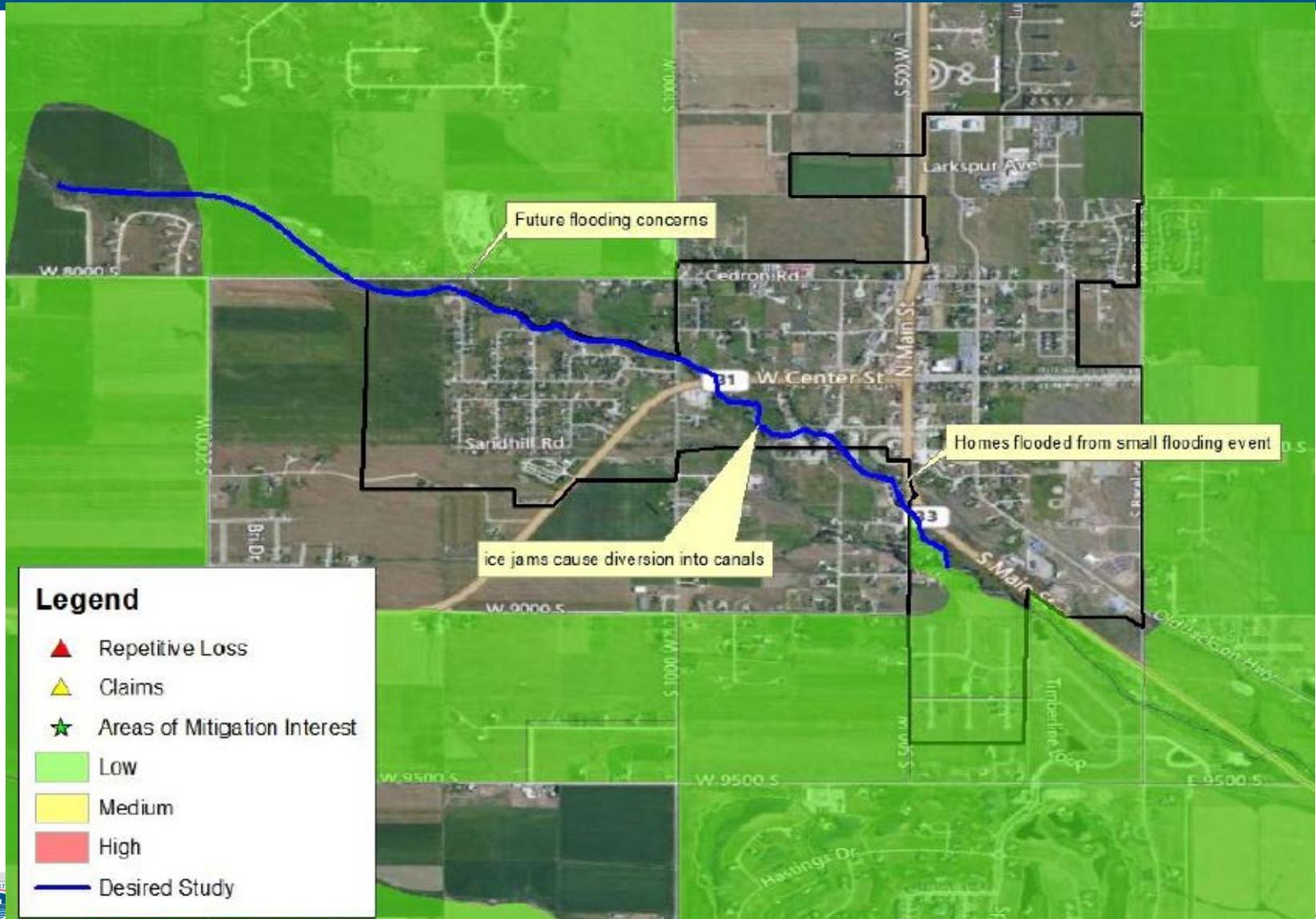
Debris	10% (10-yr)	2% (50-yr)	0.5% (200-yr)
Debris (tons)	6016.7	5381.5	6048.71

# Infrastructure Analysis (Rexburg)

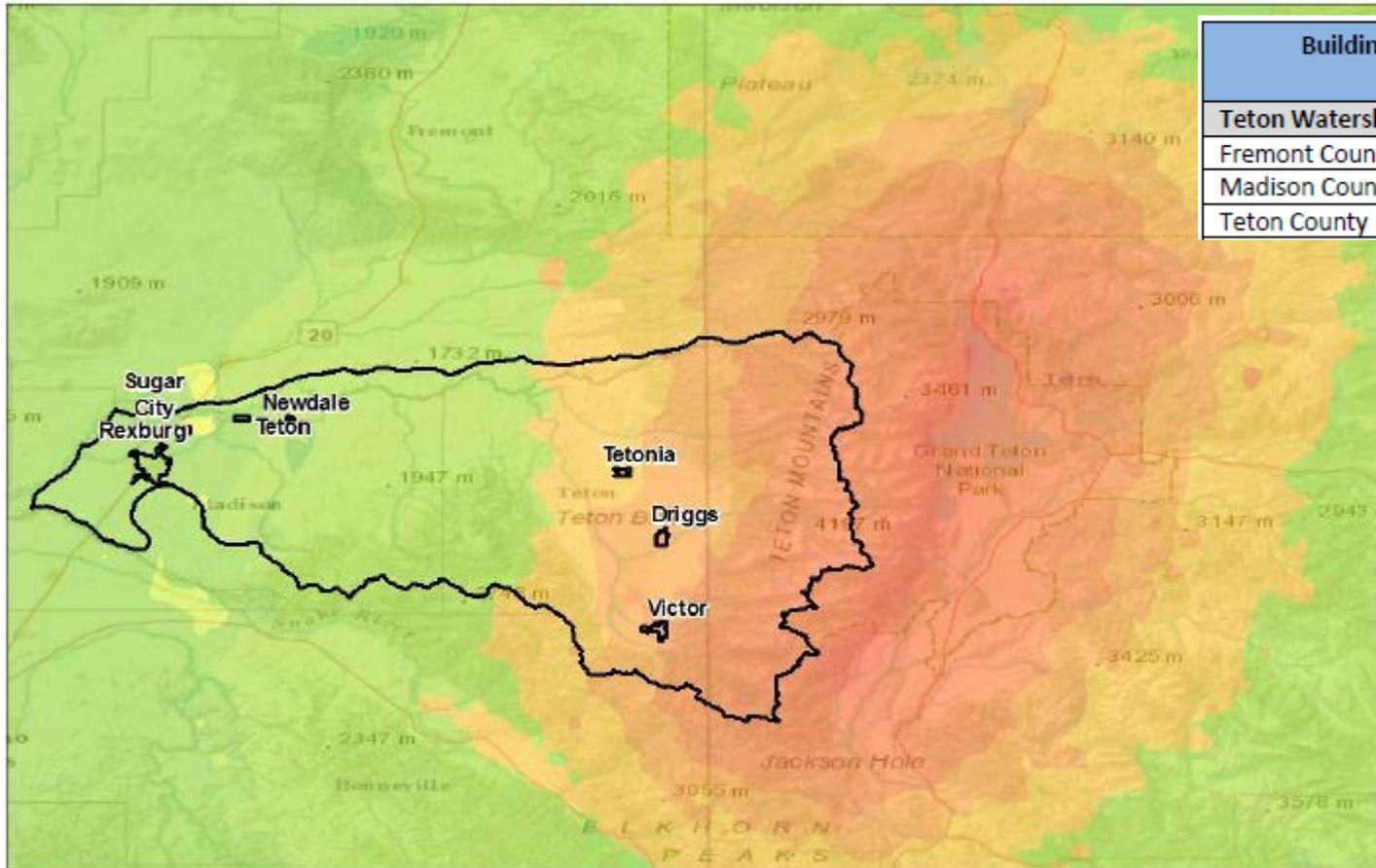


*This figure shows Madison Senior High School inundated by the HAZUS generated 200-year flood.*

# City of Victor: AOMI



# Seismic Analysis



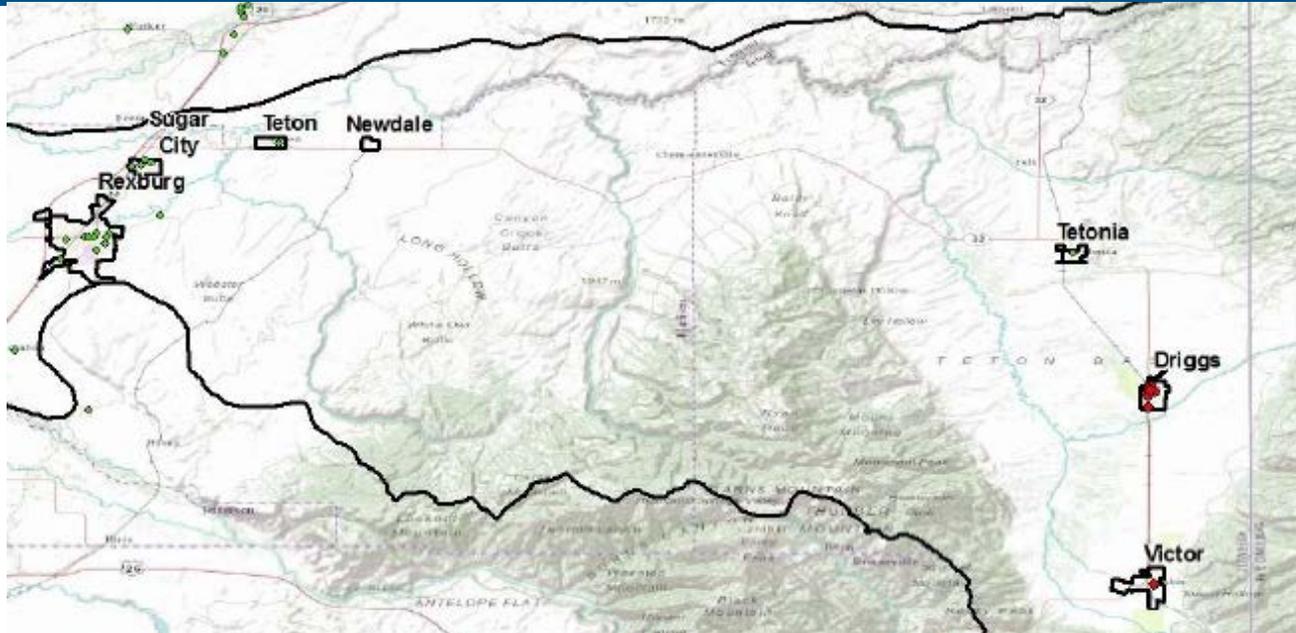
Building-Related Economic Losses (building+contents)	
Teton Watershed	\$3,888,713
Fremont County	\$447,686
Madison County	\$536,847
Teton County	\$2,420,382

## M7.2 Teton Fault Earthquake

**Disclaimer:**  
 The estimates of impacts illustrated on this map were produced using FEMA's HAZUS loss estimation software and the USGS's ShakeMap ground motions. There are uncertainties inherent in any loss estimation technique; therefore, there may be significant differences between the modeled results and actual losses following a specific earthquake.



# Seismic Analysis Continued



**Essential Facilities Susceptible to Damage**

Facility Name	Facility Type	County	City
Basin Junior High	School	Teton	Driggs
Driggs Elementary School	School	Teton	Driggs
Teton Education Center	School	Teton	Driggs
Teton Middle School	School	Teton	Driggs
Teton Valley Hospital	Hospital	Teton	Driggs
Teton County Sheriff	Police	Teton	Driggs
Victor Elementary School	School	Teton	Victor

# Eastern Idaho Earthquake Index

- **USGS Shakemaps**
- **Hazus Instructions for Earthquake**

Eastern Idaho Earthquake Index

A guide to available ShakeMaps in Eastern Idaho produced by the United States Geological Survey (USGS)



Utah Wyoming Montana

Idaho Falls Rexburg Jackson Logan Ogden Bear Lake Evansville

Teton fault Grand Valley fault Grey's River fault Mount Sheridan

Upper Yellowstone

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# Partnership Agreement

- Communication
- Products
- Signatures

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# Trainings

## Available

- Overview of HAZUS Flood Loss Estimations
- Overview of HAZUS Earthquake Loss Estimations
- Preparing Data for HAZUS
- Overview of Hazard Mitigation Planning
- Letters of MAP Change
- Elevation Certificates
- Elevation Certificates in A Zones
- Regulating Development in Unnumbered A Zones
- Two-Year Preferred Risk Policy Eligibility Extension
- Why Hydrology Matters
- Post-Flood Recovery and Substantial Damage Assessments

## In-Development

- Hazard Mitigation Planning “How to”
- Guide for collecting high water marks
- Floodplain Manager/CFM refresher course
- Inspecting developments in the SFHA
- Overview of FEMA Grants
- What is Risk MAP?
- How communities can promote flood risk awareness (community engagement strategies)
- Public Damage Assessments (PDAs)
- Community Rating System (CRS)



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# Questions/Suggestions??

- Additional Enhanced data sets?
- Trainings?

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# Questions & Comments

## FEMA Contacts

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