

# Discovery Report

FEMA Region X

American Falls and Idaho Falls Watersheds, Idaho

Discovery Meetings: January 27-29, 2015



# FEMA

Prepared by



# Table of Contents

I.	Discovery and Risk Map	1
II.	Watershed Description	1
III.	Project Description and Methodology	3
IV.	Risk Map Needs	8
i.	Flood Control District 1	8
ii.	Resilience	9
iii.	Floodplain Studies and Risk Assessment	11
iv.	First Order Approximation	13
v.	Mitigation Projects	14
vi.	Shoshone-Bannock Tribes – Fort Hall Indian Reservation	15
vii.	Compliance	17
viii.	Communications	18
V.	Close	18
VI.	Appendix – Discovery Files	19

## I. Discovery and Risk MAP

The FEMA Risk Mapping, Assessment, and Planning, or Risk MAP program helps communities identify, assess, and reduce natural hazard risks. Through Risk MAP, FEMA provides information to enhance local mitigation plans, improve community outreach, and increase local resilience to hazards.

During Discovery, FEMA:

- gathers information about local hazards and hazard risks;
- reviews mitigation plans to understand local mitigation capabilities, hazard risk assessments, and current or future mitigation activities;
- supports communities within the watershed to develop a vision for the watershed's future;
- collects information from communities about their hazard history, development plans, daily operations, and hazard management activities; and
- uses all information gathered to determine which areas of the watershed require mapping, risk assessment, or mitigation planning assistance through a Risk MAP project.

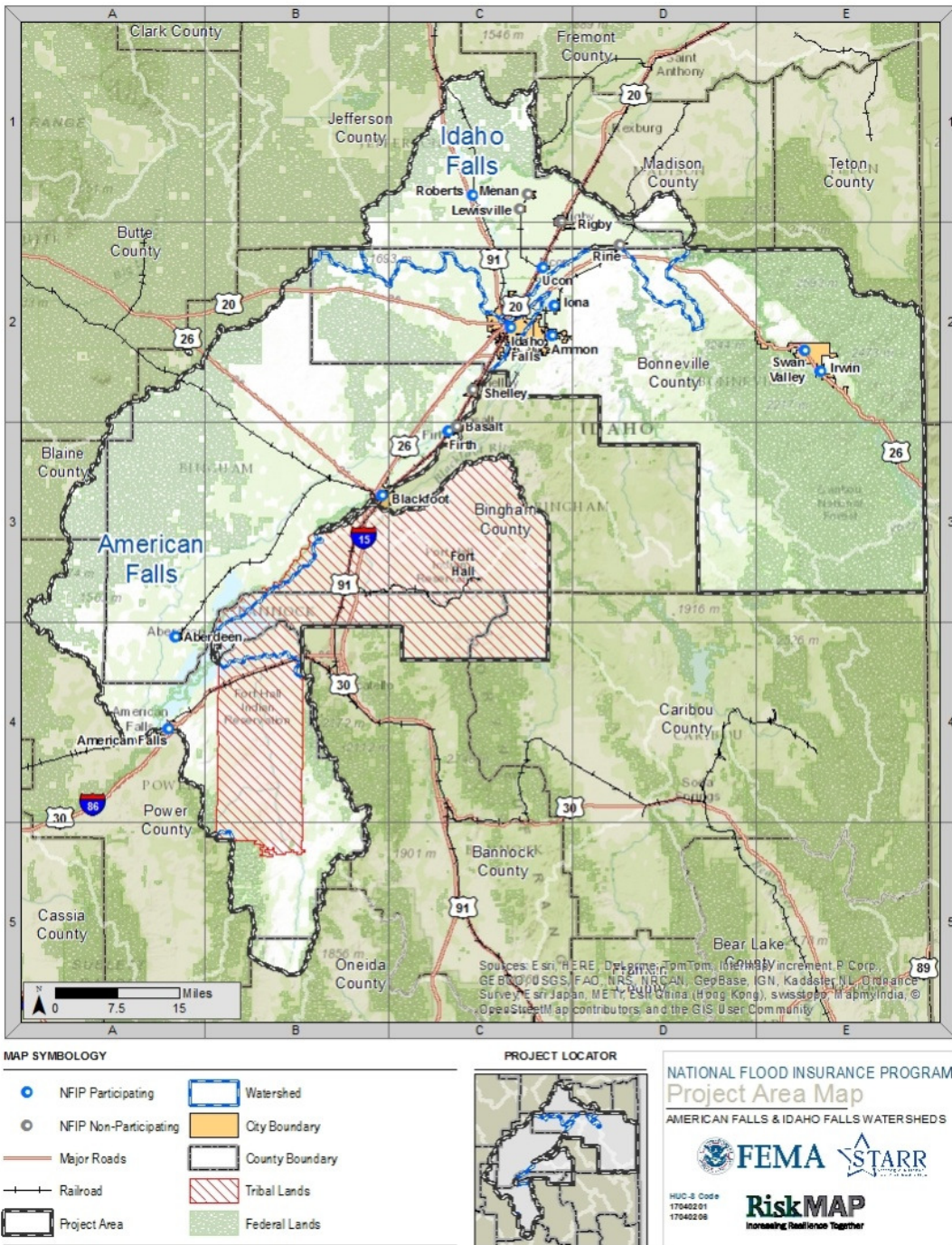
## II. Watershed Description

The American Falls and Idaho Falls Watersheds are located in southeastern Idaho. American Falls Watershed, with an area of 12693.2 square miles and Idaho Falls Watershed, with an area of 3468.6 square miles, are both intersected by Idaho's largest river, the Snake River. The Snake River Plain, which runs through both watersheds, is a topological depression formed by the North American plate moving above the Yellowstone Hotspot over a period of millions of years.

National Flood Insurance Program (NFIP) participants in the American Falls and Idaho Falls Watersheds include the Cities of Aberdeen, Ammon, Blackfoot, Idaho Falls, Irwin, and Rigby as well as the Counties of Bannock, Bingham, Blaine, Bonneville, Jefferson, and Madison. The Cities of American Falls, Basalt, Firth, Iona, Lewisville, Menan, Ririe, Roberts, Shelley, Swan Valley, and Ucon as well as the Counties of Butte, Oneida, and Power chose not to engage in the FEMA Region X Discovery process. Atomic City, a community with a population of 29 persons and 70 acres, was recommended by Idaho Risk MAP Program Manager Ryan McDaniel to be merged in with discussions with Bingham County. The city was not likely to be fully staffed and looks to Bingham County for emergency management functions.

The Shoshone-Bannock Tribe within the Fort Hall Indian Reservation encompass portions of Bannock, Bingham, Caribou, and Power Counties and were included in its entirety.

Map 1: Image of American Falls and Idaho Falls Watersheds Project Area Map (full size maps in appendix)



### III. Project Description and Methodology

Discovery is the process of data collection, including information exchange between all governmental levels of stakeholders, spatial data presentation, and cooperative discussion with stakeholders to better understand the area, decide whether a flood risk or other hazard risk assessment project is appropriate, and if so, to collaborate on the project planning in detail. At this time, Discovery processes and requirements are still being defined; however, draft guidance is available from the draft *Appendix I – Discovery (fall 2010)*, and the draft *Meetings Guidance for FEMA Personnel (October 2010)*. In addition, there are several draft tools and templates at various stages of completion that were used to support the effort.

Region X initiated an extensive Discovery project in October 2010, with the Discovery of 24 watersheds/project areas in Idaho, Oregon, Washington, and Alaska, involving almost 200 communities. Essentially a pilot project for the Discovery process itself, RX Discovery involved data collection, community interviews, a meeting with stakeholders in the watershed, and development of recommendations based on an analysis of data and information gathered throughout the process.

**Figure 1. Data Sources for Region X Discovery (project-specific data sources in Appendix)**

Alaska State Geospatial Data Clearinghouse	FEMA Regional Office	National Oceanic and Atmospheric Administration (NOAA)
Oregon Department of Transportation	FEMA Map Service Center	NOAA Fisheries Service
Idaho Department of Transportation	FEMA Publications	NOAA National Geophysical Data Center
Idaho State Geospatial Data Clearinghouse	FEMA Community Information System	U.S. Army Corps of Engineers National Levee Database
Washington State Department of Transportation	FEMA Coordinated Needs Management System (CNMS)	U.S. Census Bureau
Community data, where available	FEMA HAZUS	U. S. Census - TIGER
Local, Regional, State website search	FEMA RX Inventory	U.S. Department of Agriculture
Developed based on community interview/meeting	FEMA Legacy Data	U.S. Fish and Wildlife Service
STARR	Data.gov	U.S. Geologic Survey
ESRI	National Atlas of the United States	

The Region X Discovery data collection entailed a massive collection of tabular and spatial data for all communities from Federal and State sources, as well as information collected through interviews with each community. The tabular data file in the Appendix provides detailed information about the data and its use in Discovery for this specific watershed. Data was used primarily in two ways – tabular data was documented on a Community Fact Sheet, and spatial data was included in the Discovery Geodatabase, and is displayed on the Discovery maps, where appropriate. Full-sized Discovery maps are included in the appendix.

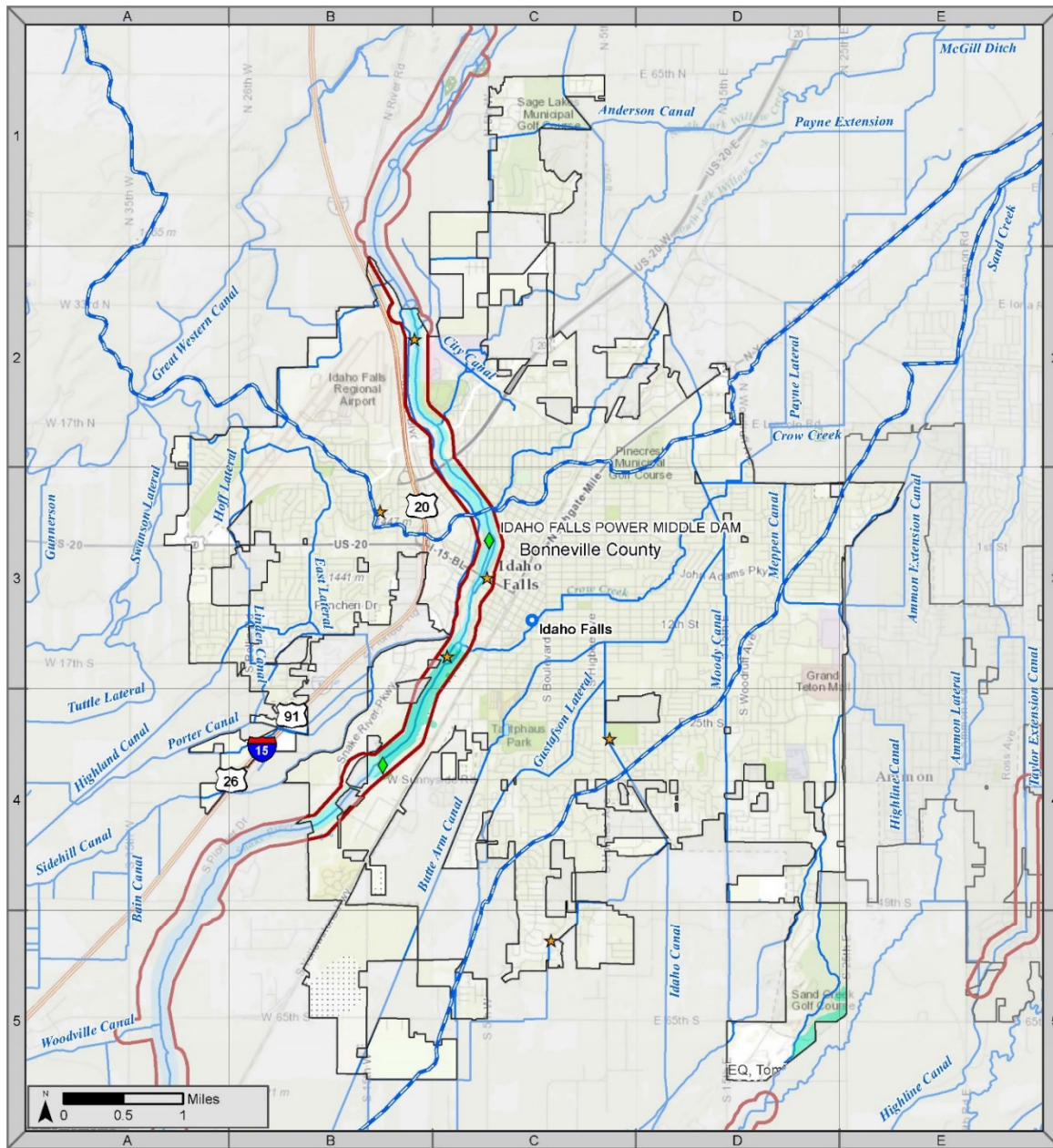


The second phase of the Region X Discovery effort involved a review of the collected data with community officials through a phone interview, and a request for additional information. Prior to the interview, community officials received information about the Discovery process as well as a Fact Sheet and Interview Reference Map for their community. Communities were asked to identify “Areas and Points of Concern” based on their local knowledge and analysis of the data shown on the map. The Areas and Points of Concern (mapping needs, desired mitigation projects, etc.) were documented in the Discovery Geodatabase and discussed during the Discovery Meeting.

**Figure 1. Fact Sheet, page 1, for Madison County (tabular data in appendix)**

<b>Region X Discovery Factsheet: Idaho Falls Watershed</b>			
<b>MADISON COUNTY</b>		Status:	Participating
Madison County (Unincorporated Areas)		Current Map Date:	6/3/1991
CID: 160217		Reg-Level:	C
LOMCs: 32		CAC Date: 9/21/1994	
CRS: No		CAV Date: 9/4/2001	
<b>Demographics - Madison County (U.S. Census, Year 2010 Data Collection)</b>			
Total Population (Year 2010):	37,450	Language Other than English (%):	10.4
Median Age:	22.6	High school graduate or higher (%):	94.9
65 Years and Over (%):	6.0	Bachelors degree or higher (%):	31.9
Native American (%):	0.5		
<b>Industrial - Madison County (U.S. Census, Year 2010 Data Collection)</b>			
Population in Labor Force:	17,776	Top Industry: 35.3%	
		Educational Services, Health Care, and Social Assistance	
Median income (Household):	\$33,776		
<b>Presidentially Declared Disasters - Madison County (FEMA Declarations Data.gov)</b>			
Disaster Types:	Severe Storms, Snowmelt, Landslides, Mudslides, Flooding, Dam Collapse		
Most Recent Disaster:	Severe Storms, Snowmelt, Landslides, Mudslides, Flooding		
Most Recent Disaster Date:	3/14/1997-6/30/1997		
<b>National Flood Insurance Program - Madison County (FEMA Community Information Systems)</b>			
Total Premiums:	\$25,784	No of BCX Claims:	0
Total Coverage:	\$10,695,900	No of Variances:	0
Number of Policies:	38	No of Rep Losses:	0
A-Zone:	1		
<b>Levees and Flood Control Structures - Madison County (USACE National Levee Database)</b>			
Lyman Creek (Left Bank) and Lyman Creek (Right Bank), both located on Snake River; Heise-Roberts 2 (Right Bank – Upper), located on Parks Lewisville Canal			
<b>Environmentally Sensitive, Tribal, and Coastal Areas - Madison County (Fish and Wildlife Service, IDWR, FEMA)</b>			
Endangered/Critical Species: None			
Wetlands/Shorelines: Henry's Fork; Snake River; South Teton River			
Tribal Communities: None			
Coastal Areas: None			
<b>Mitigation and Grants - Madison County / State of Idaho (FEMA Hazard Mitigation Grants Data.gov)</b>			
Approved HMIPs: State of Idaho Hazard Mitigation Plan - 2013			
Statewide Grants: Non-Structural Retrofitting/Rehabilitating Public Structures – 7/6/2005; Public Awareness and Education (Brochures, Workshops, Videos, etc.) – 7/27/2010			
County Grants: None			

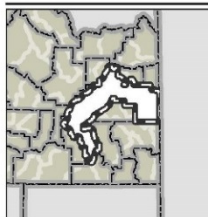
**Map 2. Image of Interview Reference Map for the City of Idaho Falls in American Falls and Idaho Falls Watersheds**



**MAP SYMBOLOLOGY**

- Participating
  - Non-Participating
  - LOMC Locations
  - ◆ Dams
  - ★ USGS Gages
  - |||| Levees
  - Major Roads
  - ▭ Watershed
  - ▭ County Boundary
  - ▭ City Boundary
  - ▨ Tribal Lands
  - ▨ Federal Lands
  - ▭ CNMS Mapping Needs
  - ▭ Effective Flooding
  - ▭ Detailed SFHA
  - ▭ Zone A
  - ▭ Zone B / X (shaded)
- Note: Legacy Q3 Data presented in areas of this map. Please reference effective FIRMs for accurate SFHAs.

**PROJECT LOCATOR**



**NATIONAL FLOOD INSURANCE PROGRAM  
Information Exchange Map**

IDAHO FALLS, CITY OF - 160029  
AMERICAN FALLS / INDIAN FALLS WATERSHED



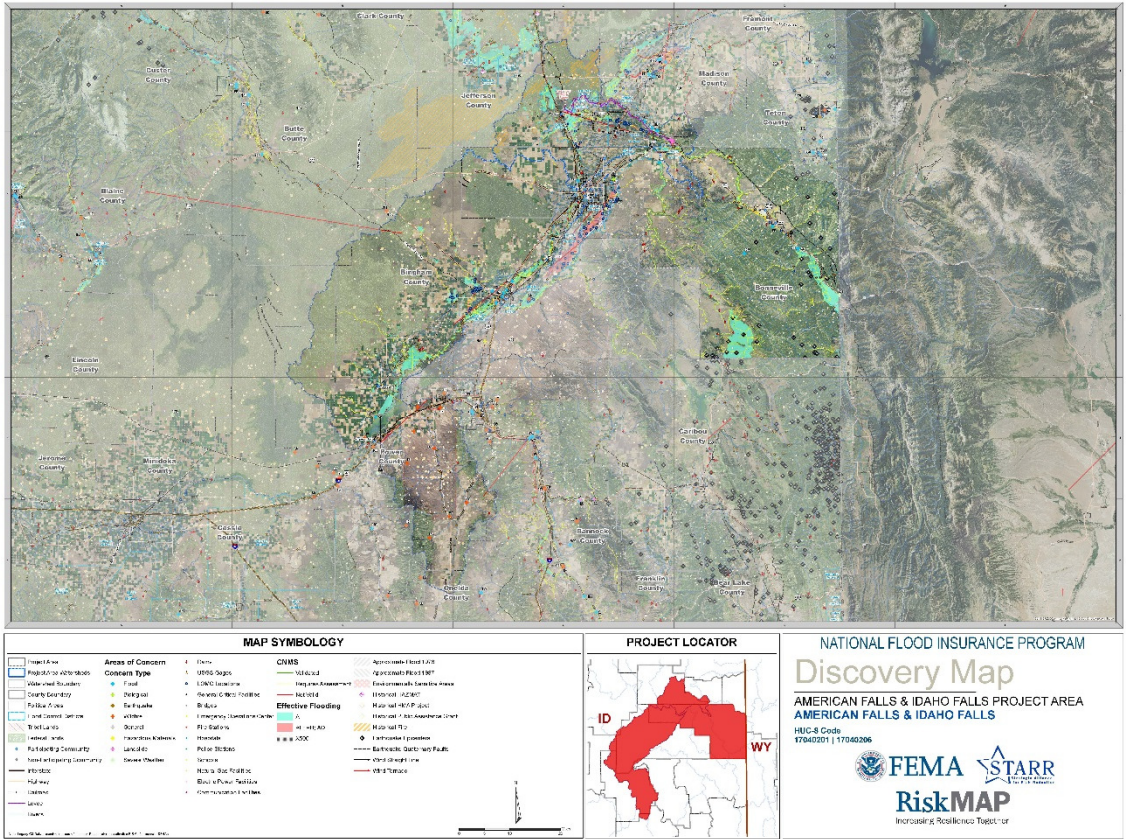
HUC-8 Code  
17040201  
17040206

**RiskMAP**  
Increasing Resilience Together



The third step was to hold a watershed-wide Discovery Meeting and facilitate discussion and data analysis of study needs, mitigation project needs, desired compliance support, and local flood risk awareness efforts. The discussion was stimulated using the Discovery Geodatabase display of relevant data. Attendees, including all affected communities and selected other stakeholders, cooperatively identified possible solutions for the Areas and Points of Concern shown on the Discovery Meeting Map. Solutions included recommendations of floodplain studies, mitigation projects, compliance issues, and ideas on how to improve the local flood risk communication programs.

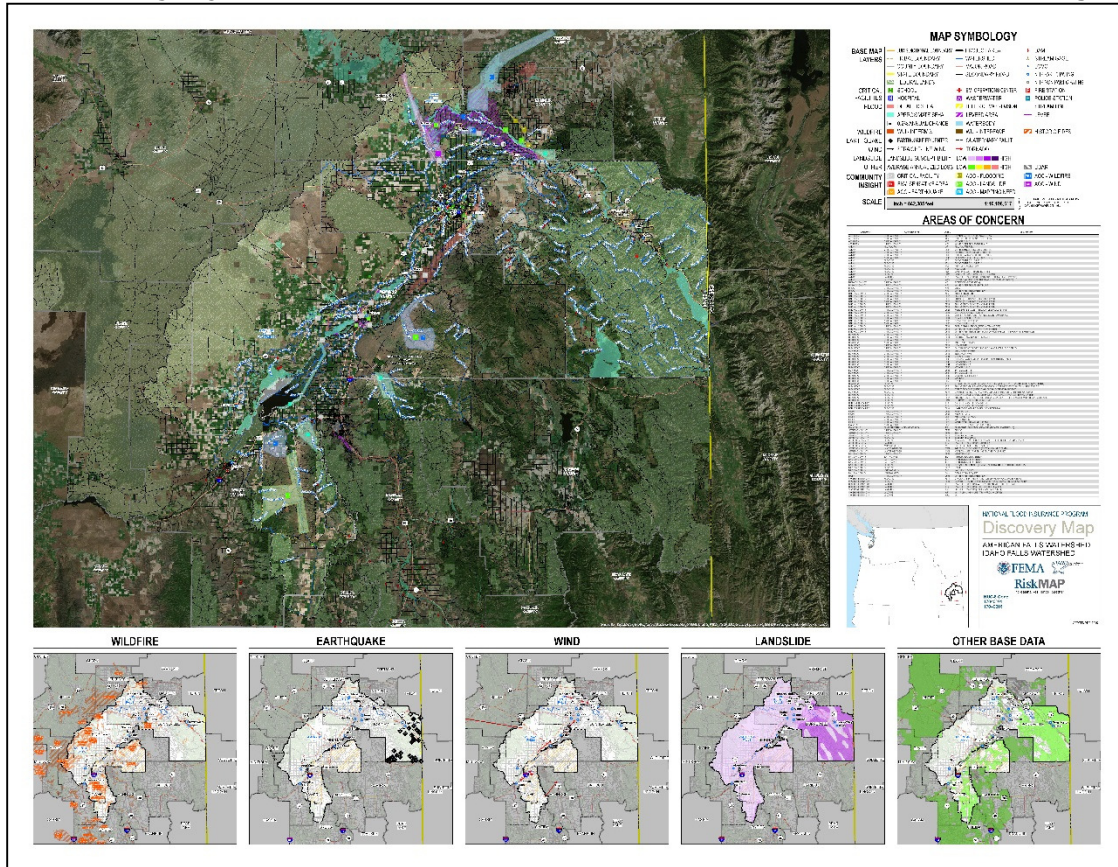
**Map 3. Image of the American Falls and Idaho Falls Watersheds Discovery Meeting Map**



The fourth phase of the Discovery effort involved an analysis of the data and information collected and discussed at the meeting, and recommendations as to the future relationship and activities between FEMA and the watershed communities. The Final Discovery Map indicates desired study areas and mitigation project locations, and the Discovery Report documents the results of data collection and conversation. If a Risk MAP project is to be initiated in this watershed, Discovery will be concluded with the finalization of a project scope and signed Project Charters, which indicate that all affected stakeholders agree to the terms of a funded project, including communication and data responsibilities.



**Map 4. Image of the American Falls and Idaho Falls Watersheds Final Discovery Map**



## IV. Risk Map Needs

The results of the data collection and interviews were thoroughly discussed at the Discovery Meeting. The following sections include issues and situations that exist in the American Falls and Idaho Falls Watershed communities that can be considered Risk MAP needs, to be addressed with Risk MAP projects. Details and background on all issues can be found in the interview notes, meeting notes, and other files included in the appendix.

### i. Flood Control District 1

A special meeting was held on January 27<sup>th</sup> between members of FEMA, the State of Idaho, and Commissioners from Flood Control District (FCD) 1 to discuss the role the FCD has in maintaining, funding, and communicating specific levee needs to residents and public officials in Bingham, Bonneville, Madison, and Jefferson Counties.

During the meeting the FCD 1 provided a brief history of their involvement with the levees and insight into their future involvement with the system.

- In the 1940s and 1950s FCD 1 managed the levees that were built by the United States Army Corps of Engineers (USACE).
- The USACE has provided flood fighting, vegetation and drainage through the levees.
- Up until about 15-20 years ago the USACE did the yearly O&M paperwork.
- FCD 1 have O&M, tax authority, and easement rights but do not own the levees.
- Tax collections are greater from the two counties with fewer levees.
- If SFHA changes or increases, FCD 1 would like to redistrict the taxable area.
- Madison County does not think a Provisionally Accredited Levee (PAL) is necessary as it believes it would take too long to locate the documentation needed.

At the meeting, FEMA explained the various approaches it uses when levees are within a future flood study project area and how they could possibly be utilized in the area covered by FCD 1.

The following is a summary of items that FCD 1 would be interested in learning more about:

#### Hydrography

- What percent annual chance event were the previous floods on the Snake River abutting the Robert-Heisse levee system in 1984, 1997, 2009, & 2011? Specifically, could FEMA provide an annual hydrographic chart that depicts historical flooding scaled by percent annual chance, cfs, and year?

#### Analysis

- Could FEMA analyze the differences between the first order approximation (first-pass) and the current effective map on the taxable structure data (if available)? This would be a simple intersection of various scenarios and for informational purposes only. County assessor data would need to be provided to FEMA. FCD 1 is interested in the areas protected by the levees and which structures would be inundated if the levees did not exist or were removed from the models (not showing protection).

#### NFIP – FDIC implications

- What is the extent of federally backed loans by the FDIC? Do these include USDA loans, crop insurance, NRCS, Railroad bridge programs and other federal grant programs that provide for school Head-Start, after school programs, or CDBG block grants?

### **Situational Awareness**

- What resources could the Silver Jackets (SJ) provide to FCD 1, such as the listings in the SJ program guide? If FCD 1 could provide a list of questions, would the SJ consider assembling a body of knowledge to assist the FCD1? The purpose could be to develop a SJ team that could identify the existing body of engineering knowledge, historic timeline, historic key moments of choice, conflicting regulations (devegetation vs. threatened species). The purpose would be to enhance understanding of the built environment, timeline, opportunities, and challenges to accreditation.

### **Obstacle Identification**

- What are the implications for accrediting a levee if an environmental group, or property owner, refuses to improve a levee section or allow survey/maintenance work to be performed? The Cutthroat Trout is an Endangered Species that limits what FDC 1 can do around the levees. There are also other groups such as the BLM or Bird/Fowl group as well as the USACE levee vegetation policy that could be obstacles to accreditation of the levees.

### **Alternatives Assessment**

- What are the minimum criteria for accreditation? What is FCD 1 already doing that satisfies, in full or in part, accreditation criteria? A path toward accreditation could be identified once the situation was more fully understood and would enable an assessment of alternatives by FCD 1 and understanding of the level of effort needed over the long term.

### **Engineering Methods**

- The upper segment of the Snake River is subject to scouring, and the river is constantly changing itself. These forces are evidenced by the belief that this river is digging itself a deeper bed and, as a result, raising the levee crest height. Would a future bathymetric model of some variety include surveyed channel bathymetry? What year was the existing survey completed, as shown on the effective map? Could new bathymetry be funded?

### **Specialized Communication Instruments**

- Outreach materials that communicate risk could be tailored to support local jurisdictions and FCD 1. Communicating the existing flood risk reduction efforts already in effect, the levee protection already provided by the levee, choices for future flood risk reduction and the fiscal implications of these choices are preferred. One publication that the FCD 1 expressed interest in was “So you live behind the levee”.

## **ii. Resilience**

During the Risk MAP Discovery Meetings that took place January 27<sup>th</sup> through 29<sup>th</sup> in the Idaho Falls and American Falls Watersheds, community representatives were asked to introduce themselves and answer one of two questions:

1. How do you contribute to the resilience of your community?
2. How would you like to see resilience increased in your community?



Here are their responses:

**Table 2: American Falls and Idaho Falls Watersheds contribution to Resilience**

Jurisdiction	Representative	Ways Currently Contributing to Resilience	Ways Resilience can be increased
Ammon, City of	Ray Ellis Lance Bates Ron Folsom	Resource allocation, identification of hazard information, mapping, coordination with emergency management	-
Bannock County, Unincorporated Areas of	Tim Shurtliff Linda Tigert	Floodplain permits	Communication and outreach
Bingham County, Unincorporated Areas of	Allen Jensen	Regulations, building and zoning	-
Blackfoot, City of	Rex Moffat Rex Orgill Kevin Gray	Sewer/storm water management, development and maintenance, resource management, equipment management	-
Bonneville County, Unincorporated Areas of	Dawn Leatham Steve Serr Tom Lenderink	GIS/mapping, education community development, building codes, compliance with regulations hazard identification, individual and business preparedness	Improved communication through social media, assistance with grant identification
Idaho Falls, City of	Kerry Beutler Kent Fugal Brad Cramer Chris Canfield Derek Bates	Planning, communication, city infrastructure mitigation zoning/permits to control development, identification of critical facilities	Improve response efforts
Irwin, City of	Birgit Cripe	Planning and zoning, land use	-
Jefferson County, Unincorporated Areas of	Naysha Foster Emily Kramer	Regulations and enforcement, individual preparedness	-
Madison County, Unincorporated Areas of	Brent McFadden Todd Smith	Control development and restrict it from high hazard areas, identify assets and resources	-
Rigby, City of	Dave Swager	Social media	-
Shoshone-Bannock Tribes	Wes Jones Brian Briggs Hal Hayball High Davis Laurie Hernandez Mary Washakie	Emergency Operations Center used for less than critical events to ensure readiness in case of a major disaster.	
Flood Control District 1	Kerry Lindquist Gary Wilcox	Maintain infrastructure, maintain situational awareness, and monitoring	-
Flood Control District 7	Marion Walker	Channel/levee maintenance and transportation	-
Idaho Fish and Game	Jim Mende	-	Environmental focus
Bureau of Reclamation	Megan McKay	Dam failure scenarios and Emergency Action Plans	-
National Weather Service	Corey Loveland	Situational awareness by the monitoring of water supply, snow pack, flooding, and stream gages	-

**Image 1. Representatives of the City of Ammon working with Ryan McDaniel and Susan Cleverly of Idaho BHS**



### iii. Floodplain Studies and Risk Assessment

The Idaho Falls and American Falls Watersheds include nine counties, seventeen local jurisdictions, and one tribal community. Table 3 provides a listing of the most recent Flood Insurance Study and Flood Insurance Rate Maps (FIRMs) update as well as whether or not the studies include detailed floodplain analysis.

**Table 3: American Falls and Idaho Falls Watersheds Most Recent FIRMs and FIS**

County	Community	Latest FIRM	Latest FIS	Detailed
Bannock County	Unincorporated Areas	2009-07-07	2009-07-07	Y
Bingham County	Aberdeen, City of	1979-08-15	1979-02-15	Y
Bingham County	Basalt, City of	N/A	N/A	N/A
Bingham County	Blackfoot, City of	1998-10-20	1998-10-20	Y
Bingham County	Firth, City of	1983-09-15	1983-03-15	Y
Bingham County	Shelley, City of	N/A	N/A	N/A
Bingham County	Unincorporated Areas	1998-10-20	1998-10-20	Y
Blaine County	Unincorporated Areas	2010-11-26	2010-11-26	Y
Bonneville County	Ammon, City of	2002-04-02	2002-04-02	Y
Bonneville County	Idaho Falls, City of	1982-10-15	1982-04-15	Y
Bonneville County	Iona, City of	N/A	N/A	N/A
Bonneville County	Irwin, City of	N/A	N/A	N/A
Bonneville County	Ririe, City of	N/A	N/A	N/A
Bonneville County	Swan Valley, City of	1980-08-01	1980-02-01	Y
Bonneville County	Ucon, City of	N/A	N/A	N/A
Bonneville County	Unincorporated Areas	2002-04-02	2002-04-02	Y
Bonneville County	Unincorporated Areas	2002-04-02	2002-04-02	Y
Butte County	Unincorporated Areas	1986-06-03	N/A	N
Fort Hill Indian Reservation	Fort Hill Indian Reservation	N/A	N/A	N/A
Jefferson County	Lewisville, City of	2008-09-26	2008-09-26	N/A

County	Community	Latest FIRM	Latest FIS	Detailed
Jefferson County	Menan, City of	2008-09-26	2008-09-26	N
Jefferson County	Rigby, City of	2008-09-26	2008-09-26	N/A
Jefferson County	Ririe, City of	2008-09-26	2008-09-26	N/A
Jefferson County	Roberts, City of	2008-09-26	2008-09-26	N
Jefferson County	Unincorporated Areas	2008-09-26	2008-09-26	Y
Madison County	Unincorporated Areas	1991-06-03	1991-06-03	Y
Oneida County	Unincorporated Areas	N/A	N/A	N/A
Power County	American Falls, City of	1982-01-19	N/A	N
Power County	Unincorporated Areas	N/A	N/A	N/A

The Final Discovery Map should be referenced to view spatial data that may be indicative of study needs. Items of interest include Areas of Concern expressed by state and local officials, critical facilities, existing floodplains, Letters of Map Change (LOMCs), and historic fires and flooding.

Existing LiDAR is available along Henry's Fork and Teton Rivers, and the Snake River in areas of Jefferson, Madison, and Bonneville Counties. Additional LiDAR coverage exists for Jefferson County outside of the Snake River area. Data is currently available through the Idaho LiDAR Consortium. Future LiDAR efforts are expected to be flown in the American Falls and Idaho Falls Watersheds in late 2015.

Several levees were identified in Madison, Jefferson, and Bonneville Counties along the Snake River through a combination of the U.S. Army Corps of Engineers (USACE) National Levee Database, FEMA's Regional Flood Hazard Layers, and Mid-Term Levee Inventory as well as from information obtained in Community Interviews and from Idaho Flood Control Districts 1 and 7. The communities and officials representing Flood Control Districts 1 and 7 did not indicate that they had documentation at this time that the levees would be 44 CFR 65.10 compliant.

Discovery action and follow-up items are detailed below.

**Table 4: American Falls and Idaho Falls Risk Assessment**

STUDY AREA	STUDY LENGTH (miles)	LOCATION DESCRIPTION	STUDY TYPE
Snake River	25.75	The upper segment of the Snake River is subject to scouring, and the river is constantly changing itself.	Bathymetry
Flood Control District 1	N/A	Display differences in flood hazard between effective special flood hazard area and flood hazard areas identified in FOA analysis in FCD 1.	Changes Since Last FIRM
Palisades Dam	N/A	Dam breach from Palisades Dam into Jefferson, Madison, and Bonneville Counties.	Dam Breach Inundation Mapping
Ririe Dam	N/A	Dam breach from Ririe Dam to City of Ammon.	Dam Breach Inundation Mapping
Flood Control District 1	N/A	Identify percent annual chance flood hazard risk in FCD 1.	Depth/WSE Grids
Dry Bed	8.95	Jefferson County upstream of the existing limit of detailed study for Dry Bed.	Detailed Floodplain



STUDY AREA	STUDY LENGTH (miles)	LOCATION DESCRIPTION	STUDY TYPE
Henry's Fork	22.60	From the confluence with the Snake River upstream to the Fremont / Madison County boundary.	Detailed Floodplain
South Teton River	3.48	From the confluence with Henry's Fork to the limit of detailed study in Madison County.	Detailed Floodplain
City of Ammon	N/A	Communitywide fault identification.	Fault Identification
Rexburg Fault	5.76	Immediately south of existing Rexburg Fault line and following a portion of Sunnyside Canal	Fault Identification
Bingham County	N/A	Hazus Level II for bridge functionality (specifically Fairbutte, Highway 26, I-16, Firth, and Shelley) factoring in flooding and seismic activity.	Hazus Level II
Bingham County	N/A	Hazus Level II for school seismic damage. Coordinate with school districts to obtain building values, develop list for pre-code schools and essential facilities.	Hazus Level II
City of Irwin	N/A	Hazus Level II earthquake analysis to identify at-risk facilities.	Hazus Level II
Downstream of Palisades Dam	N/A	Identification of high spaces and evacuation routes in case of dam failure into Jefferson, Madison, and Bonneville Counties.	Hazus Level II
Bonneville County	N/A	Countywide identification of landslide hazards and vulnerable structures.	Landslide Identification
City of Irwin	N/A	Citywide identification of landslide hazards and vulnerable structures.	Landslide Identification
Bonneville County	N/A	Identification of land that can be bought out and turned into retention ponds.	Stormwater Management
City of Blackfoot	N/A	Stormwater flooding east of I-15 following West Judicial Street, north along Pendelbury Lane, and back west along Ridge Street.	Stormwater Management

#### iv. First Order Approximation

First Order Approximation (FOA) is the process to model floodplain boundaries at multiple recurrence intervals as well as produce water surface elevations at a large scale. The results of this analysis are then used to determine the validity of effective Zone A studies. Besides determining study validity, FOA has several additional uses. FOA is the starting point for several regulatory and non-regulatory products, a tool for outreach, communication, and can be used as best available data for MT-1 processing.

For the American Falls and Idaho Falls Watersheds, the FOA analysis will provide a first attempt at simulating a 1% Annual Chance Flood in over 1000 miles of identified streams. FOA will be run primarily in Bingham, Bonneville, Jefferson, and Madison Counties with the Snake River being the most notable flood source. The results of this effort intend to give local officials and stakeholder groups a better understanding of possible changes in identified flood hazards and will help determine whether to pursue future Risk MAP studies in the vicinity. To support FOA, LiDAR is scheduled to be flown along the Snake River and some corresponding tributaries through a partnership of FEMA and DOGAMI in 2015.

## v. Mitigation Projects

Available mitigation plans in the American Falls and Idaho Falls Watersheds are prepared at the county level and typically include all the incorporated and unincorporated communities within the county. Below is a listing of counties and the participating communities with their most recent Hazard Mitigation Plans:

- Bannock County – *Bannock County Multi-Jurisdiction All Hazard Mitigation Plan* – dated November 11, 2008; updated September 1, 2010
- Bingham County (including the Cities of Aberdeen, Basalt, Blackfoot, Firth, and Shelley) – *Bingham County Multi-Jurisdiction All Hazard Mitigation Plan* – dated May 27, 2014
- Bonneville County (including the Cities of Ammon, Idaho Falls, Irwin, Iona, Swan Valley, and Ucon) – *Bonneville County Multi-Jurisdiction All Hazard Mitigation Plan* – dated July 16, 2014
- Jefferson County (including the City of Ririe) – *Jefferson County Multi-Jurisdiction All Hazard Mitigation Plan* – dated October 30, 2008
- Madison County – *Madison County Multi-Jurisdiction All Hazard Mitigation Plan* – dated October 31, 2008

Several potential desired mitigation projects were identified by the communities, including:

### Levees

- Snake River Levee Maintenance and Recertification: Bingham, Jefferson, and Madison Counties are seeking to recertify the levees along the Snake River and provide levee routine maintenance.

### Ordinances

- Idaho Falls Land Use Ordinance: The City desires to update its land use ordinances using existing hazard data. City is interested in pursuing an internal ordinance review.
- Jefferson County Wildfire Ordinance: Jefferson County would like to establish higher building standards to protect loss of life and property from wildfires.

### Other Mitigation Projects

- City of Blackfoot Substation: Substation located within city limits is highly vulnerable to flooding. City would like to protect the substation and minimize the risk posed by flooding in vicinity.
- City of Blackfoot Storm Water Drainage: The City of Blackfoot would like to assess its drainage system and improve areas of vulnerability.
- City of Blackfoot Transportation Assessment: The City would like to assess improvements to the railroad corridor that splits Blackfoot in half and review the potential flooding impacts to the Snake River Bridge.
- City of Idaho Falls: Review soil retention programs that could result in further tree planting.

### Outreach

- The City of Ammon: Provide multi-hazard outreach materials to its residents.
- Bannock County: Provide communication and outreach materials for all phases of the emergency management life cycle.
- Bingham County: Provide targeted outreach to homes with claims that are outside of SFHA.

- Bingham County: Provide targeted outreach to homes in the Wildland Urban Interface (WUI) area.
- City of Blackfoot: Provide outreach on non-structural earthquake mitigation for library.
- Bonneville County: Provide a more popular social media presence for emergency management.
- City of Irwin: Provide outreach to those living downstream of the Palisades Dam about risks of dam failure and emergency routes.
- Jefferson County: Provide public education regarding risk, specifically flood loss prevention, relocation, and elevation.
- Jefferson County: Provide outreach on defensible space regarding wildfires.

## vi. **Shoshone-Bannock Tribes – Fort Hall Indian Reservation**

Tribal staff from the Shoshone-Bannock Tribes were initially contacted by Idaho Bureau of Homeland Security (IBHS) to gauge interest in participating in a phone interview for the RiskMAP Discovery project. On December 12<sup>th</sup>, 2014, FEMA Region X and STARR hosted the interview with Tribal staff. Wes Jones, Shoshone-Bannock Tribes Emergency Manager, then followed up with the Tribal Business Council (TBC) to assess future participation. The Tribe met with representatives from FEMA on February 12<sup>th</sup>, 2015 in Fort Hall, Idaho. The purpose of this initial meeting was to introduce FEMA’s RiskMAP program and to allow further discussion, questions, and answers regarding the Discovery process. During the discussion, the following points were discussed:

### **Study Area**

- RiskMAP projects are initially scheduled at the watershed level and are prioritized by IBHS based on factors such as population and hazards. Watersheds are used to focus on flood hazards. TBC remarked that flood hazards are a low priority within the reservation. Furthermore, Chairperson Nathan Small mentioned that FEMA’s objective of protecting property and saving lives lacks a third component that is important to the tribes – protection of natural resources. As a result, the Tribe values all watersheds equally.

### **Seismic Hazard**

- FEMA informed the group that they are working with USGS to develop a ShakeMap for the area to assess ground motion and shaking intensity following a potentially significant earthquake and could be utilized to model potential damage to buildings and infrastructure. TBC expressed interest in earthquake assessments, and more specifically, in regards to a superfund site where the worry is contamination could last 10,000 years if the caps were damaged. Other concerns expressed by TBC included potential damage to a fertilizer manufacturing plant, the release of raw sewage, and vulnerability of I-15 in the event of an earthquake.

### **Additional Concerns**

- There are concerns regarding manufacturing and fuel plants and the risk of environmental issues in the Portneuf Watershed.
- There are concerns regarding contamination of the Blackfoot Reservoir in the Blackfoot Watershed.
- The Tribe has dealt with erosion issues along the Snake River.



After the February 12<sup>th</sup> meeting, FEMA suggested following up with an additional phone interview to discuss hazards within the Tribe in more detail and document potential mapping needs. On August 4<sup>th</sup>, 2015, FEMA Region X and STARR hosted the detailed phone interview with Tribal staff from the Shoshone-Bannock Tribes, as well as the USACE and Resilience Action Partners. During the discussion, the following points were discussed:

### **Floodplain Studies**

- According to Tribal Staff, most flood inundation areas are located in uninhabited lands. Staff recalled that during the Teton Dam failure, which occurred on June 5, 1976, there was not any significant impact on the reservation. Flood risk is considered a low priority to the Tribe. Existing flood risks are conveyed by the Bureau of Reclamation. Areas of interest regarding flood risk are mostly relegated to areas prone to flash flooding. New floodplain models that capture short and intense rainfall would be useful for the Tribe. Specific areas include the several tributaries to Bannock Creek. According to the Tribe, nine inches of rain fell within an hour along Sawmill Creek (a tributary of Bannock Creek). The impact included three washed out culverts and areas of erosion. Another location of flooding concern includes the Lincoln Creek area located in the northeastern part of the reservation. Spring runoff recently intensified due to prior forest fires in the area.

### **Additional Assessment**

- Besides reviewing flash flooding of streams within the reservation, earthquake and landslide risk pose the most concern for Tribal staff. Fort Hall Reservation is centrally located in the midst of several key transportation routes. Interstates 15 (northbound to Idaho Falls and southbound to Pocatello) and 86 (westbound to Boise and southbound to Pocatello) are major travel corridors. Another major route, US-91 intersects the reservation as well. Tribal staff would be interested in identifying key bridges that may be at risk to flash flooding and earthquake events. Additional earthquake analysis to identify at-risk facilities would also be welcome, as most structures, including most critical infrastructure, do not have any adopted earthquake building code standards. Since most facilities are masonry built and are not reinforced, a seismic analysis would capture the extent of damage given an earthquake event.
- Landslide concerns, identified by staff, reside in the central portion of the reservation between the agricultural lands and wetlands. This area is also in between “East Branch” and “The Bottoms”. A landslide assessment may be useful but is considered a lower priority as most of the area is uninhabited.
- Tribal staff expressed interest in dam failure mapping with dam failure scenarios coming from a potential dam failure of the Gem State Dam located upstream on the Snake River between the Cities of Idaho Falls and Shelley.

**Table 5: Shoshone-Bannock Tribes Risk Assessment**

STUDY AREA	STUDY LENGTH (miles)	LOCATION DESCRIPTION	STUDY TYPE
Bannock Creek	25.90	From the confluence of West Fork Bannock Creek, 25.90 miles downstream.	Approximate Floodplain
Lincoln Creek	10.11	The entire length of Lincoln Creek to the confluence of the Blackfoot River.	Approximate Floodplain

STUDY AREA	STUDY LENGTH (miles)	LOCATION DESCRIPTION	STUDY TYPE
Moonshine Creek	16.77	The entire length of Moonshine Creek to the confluence of Bannock Creek.	Approximate Floodplain
Right Fork Starlight Creek	4.98	The entire length of Right Fork Starlight Creek to the confluence of Starlight Creek.	Approximate Floodplain
Sawmill Creek	15.51	The entire length of Sawmill Creek to the confluence of Moonshine Creek.	Approximate Floodplain
Starlight Creek	10.23	The entire length of Starlight Creek to the confluence of Bannock Creek.	Approximate Floodplain
Fort Hall Reservation	N/A	Hazus Level II earthquake and floodplain analysis to identify at-risk facilities and vulnerable critical infrastructure routes and bridges.	Hazus Level II
Fort Hall Reservation	N/A	Identification of landslide hazards and vulnerable structures between “East Bench” to “The Bottoms”.	Landslide Identification
Areas downstream of the Gem State Dam	N/A	Identification of high spaces and evacuation routes in case of dam failure into Fort Hall.	Hazus Level II

The Shoshone-Bannock Tribes have an effective Hazard Mitigation Plan dated April 1<sup>st</sup>, 2014. Several potential desired mitigation projects were identified by the tribe, including:

**Earthquake**

- Incorporating new earthquake hazard mapping data in order to improve upon the earthquake vulnerability analysis for the Reservation.
- Identify backup power sources for the sewage lift stations to enhance some of the existing limited redundancies.

**Outreach**

- Educational programs to improve the knowledge of disasters and hazards which may potentially affect the Reservation. Due to limited internet connectivity, Tribal staff noticed that the most effective form of communication is through face to face interaction. Community events are one of the most effective ways to reach out and distribute informational materials to tribal members.

**Emergency Response**

- Regular training for the Emergency Operations Center (EOC) which is currently activated for less than major events and assists in preparation for major disasters. Activation of the EOC proves more effective than training sessions. GIS also acts as a critical component for emergency preparedness.

**vii. Compliance**

Data collected from CIS indicated that FEMA Community Assistance Contacts/Visits have taken place in 2011, 2005, and 2001 for the communities in the American Falls and Idaho Falls Watersheds, with no major deficiencies identified to date, and no open CACs/CAVs. The most recent FEMA Community Assistance Contact/Visit was in July 2011 with Blackfoot; prior to that was a June 2011 contact with the Bingham County. Communities in Bannock and Bingham Counties are slated for

CAVs in the 2015-2016 period. Bannock County is a Community Rating System NFIP class 8 community for having higher regulatory standards, above the minimum criteria required by FEMA. No trainings or other compliance support were requested at the Discovery Meeting.

### viii. **Communications**

In interviews, all communities indicated that they were interested in learning more about Risk MAP's communications support, and were open to a future meeting with FEMA to learn about how they can improve their communication program through heightened ordinances, Hazus Level II analysis, and targeted outreach for individuals at risk to flood, wildfire, earthquake, severe storm, and man-made hazards. Of note, Bannock County and Blaine County are the only communities to participate in the Community Rating System program.

The local officials were all interested in learning more about how to provide multi-hazard risk information to residents. Community representatives indicated the need for a better connections and delivery methods to keep the public informed, engaged, and aware of risks presented by multiple hazards in the area.

Of project area counties, population ranges from approximately 4,300 residents in Oneida County to 107,500 residents in Bonneville County (2010 Census data). The largest city within the Idaho Falls and American Falls Watersheds is Idaho Falls (56,800 residents). The Shoshone-Bannock Tribes have a population of 5,767 residents. The median age of residents varies between a low of 22.6 years in Madison County to a high of 41.7 years in Butte County. The community with the highest percentage of non-English speakers is Power County with 26.6 percent of the population. Other communities with a high percentage of non-English speakers are Blaine County at 20.3 percent, Bingham County at 15.6 percent, the Shoshone-Bannock Tribes at 14.9 percent, and the City of Blackfoot at 14.4 percent. Outside of the Fort Hall Indian Reservation, Bingham County has the largest Native American population of 7.4 percent while the remaining communities have 3.5 percent or less. The percentage of population that holds a high school diploma varies from 80.7 percent in the Fort Hall Indian Reservation to 94.9 percent in Madison County. As of 2010, the percentage of the population with a college degree varies from 9.4 percent in the Fort Hall Indian Reservation to 44.0 percent in Blaine County. Household incomes vary from approximately \$33,800 in Madison County to \$60,200 in Blaine County with the Educational Services, Health Care, and Social Assistance as the most popular industry in six of the nine counties. Due to the varying ranges within the demographic data, special outreach strategies would need to be tailored to the particular jurisdiction.

## V. **Close**

Local officials in the communities were interested in the Discovery process and Risk MAP and open to learning more about how they can begin to develop resiliency to flood, seismic, wildfire, storm, and man-made events. They identified areas for map updates and areas in which they could use additional FEMA technical support. There are levees in the watershed that do not meet accreditation requirements, so the initiation of levee outreach prior to any mapping projects will prove beneficial to the residents, local officials, and FEMA in avoiding confusion or appeals. Additionally, the local officials in these watersheds would benefit from the multi-hazard risk assessment products available through the Risk MAP process.

## VI. Appendix – Discovery Files

The Discovery Report appendices are being send via an FTP link that accompanies the Discovery Report.

Appendix A – Project Team Contact Information

Appendix B – Stakeholder Contact Information

Appendix C – Discovery Interviews

- Community Factsheets
- Community Interview Notes
- Community Interview Reference Maps
- Presentation

Appendix D – Discovery Meeting

- Discovery Meeting Materials
- Provided Materials
- Presentations

Appendix E – Discovery Report

- Areas of Mitigation Interest
- Discovery Geodatabase
- Final Discovery Figures
- Final Discovery Map
- Project Area Map