

Discovery Report

FEMA Region X

Lower Boise Watershed, Idaho



FEMA

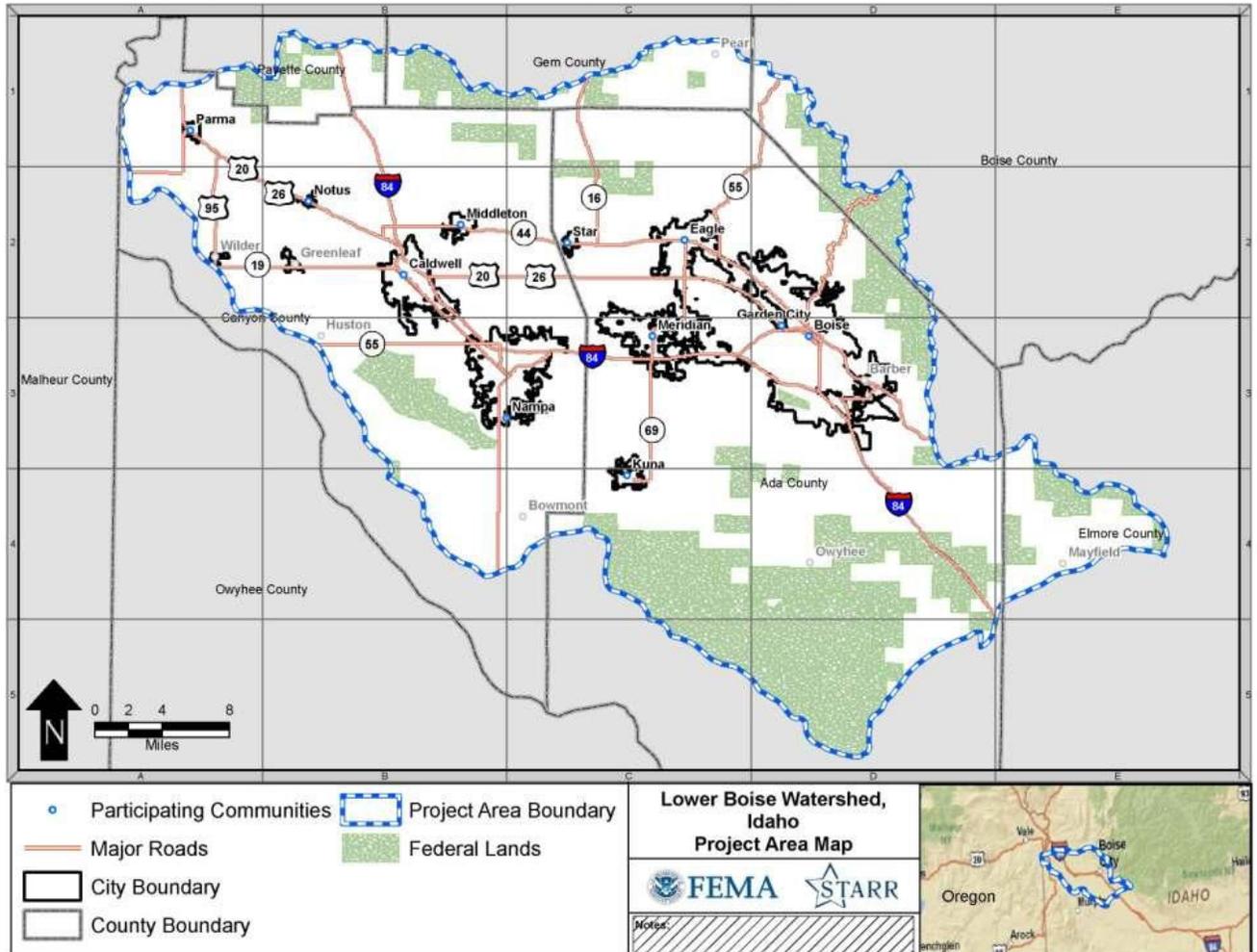
Prepared by



I. Watershed Description

The Lower Boise Watershed, located in southwestern Idaho, encompasses the main stem of the Boise River and its tributaries from the Lucky Peak Dam to the confluence with the Snake River near Parma. The entire Boise River basin has an area of roughly 4,100 square miles, beginning in the Sawtooth Mountains and flowing in a westerly direction through forested lands and ending in the high western desert of Idaho. The Lower Boise River reach from the Lucky Peak Dam to the Snake River is approximately 63 miles long with a watershed area of about 1,338 square miles. National Flood Insurance Program (NFIP) participants in the Lower Boise Watershed include Ada, Canyon, Elmore, Boise, Gem, and Payette Counties, and the cities of Boise, Garden City, Eagle, Kuna, Meridian, Star, Middleton, Nampa, Caldwell, Notus, and Parma. However, only small portions of Boise, Gem, and Payette Counties lie within the watershed, which mostly consist of federal, undeveloped lands. There are no tribal areas within the watershed.

Map 1: Image of Lower Boise Watershed Project Area Map (full size maps in appendix)



II. 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 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 At this time, Discovery processes and requirements are still being defined; however, draft guidance is available from the draft *Appendix I – Discovery (fall 2010)*, and the draft *Meetings Guidance for FEMA Personnel (October 2010)*.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,

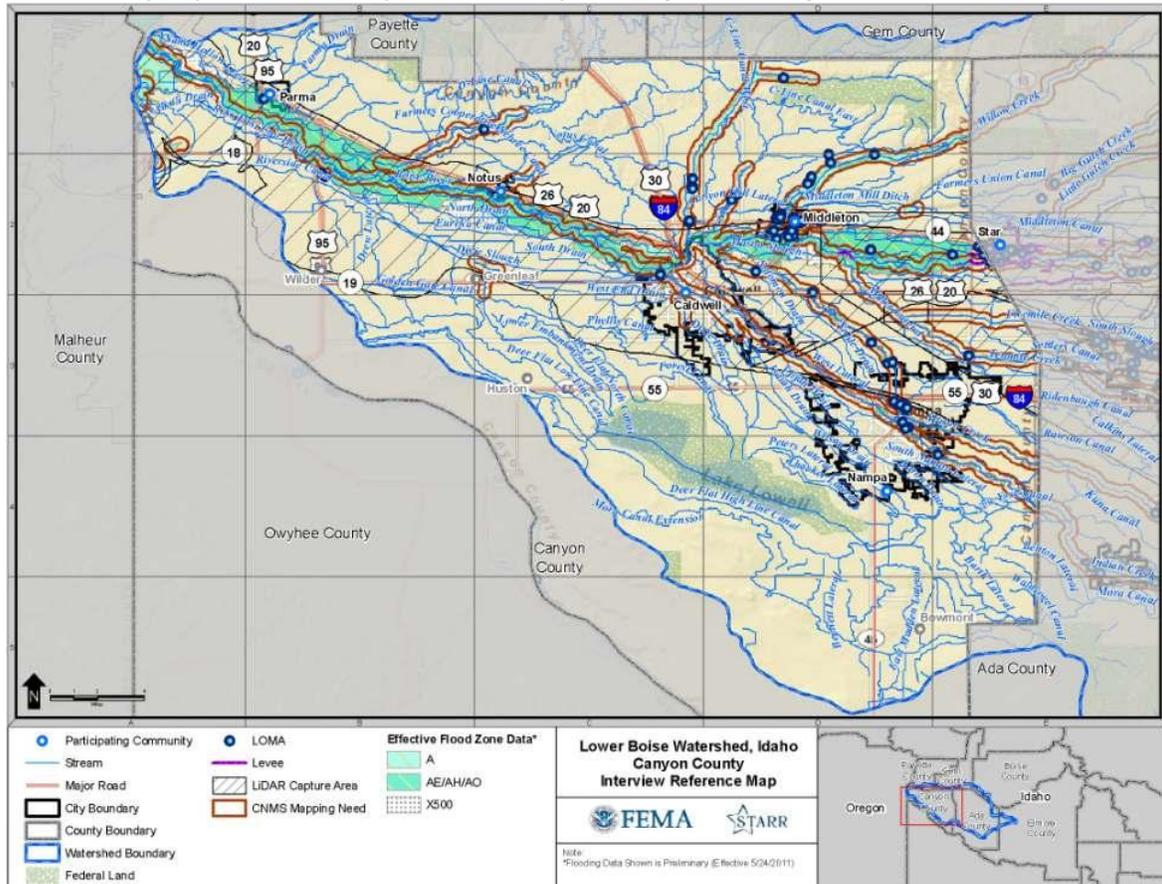
and spatial data was included in the Discovery Geodatabase, and is displayed on the Discovery maps, where appropriate. Full-sized Discovery maps are included in the appendix.

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, and 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 2. Fact Sheet, page 1, for Canyon County, Lower Boise Watershed (tabular data in appendix)

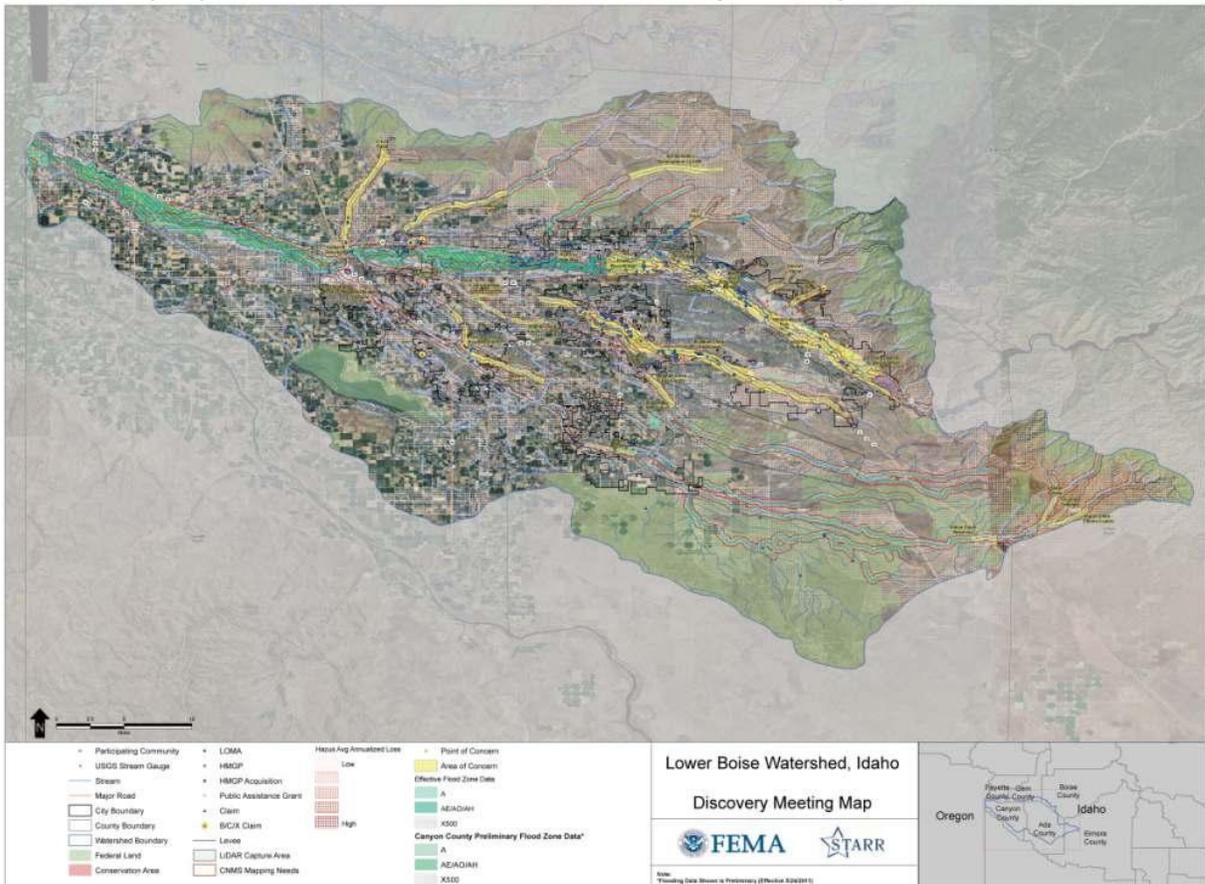
FEMA RX Discovery: Lower Boise River Watershed Fact Sheet for Canyon County, Idaho		Page 1	
FEMA Community Identification (CID) number: 160208			
Effective Flood Insurance Study (EIS) and/or Flood Insurance Rate Map (FIRM) (FEMA Map Service Center)			
Effective Date:	12/3/1993	Last Community Meeting:	1/12/1993
Level of Study:	Detailed and approximate analyses		
Floodplain Management Program (FEMA Community Information System)			
Last Community Assistance Visit/Contact:	06/30/2009	Variances:	0
Community Rating System (CRS) Status (FEMA CRS Publication, October 2010): Not Participating			
Demographics (U.S. Census, Year 2000 Data Collection)			
Population:	131,441	Social Characteristics	
Median Age:	31	Non-English Speakers:	8%
Elderly (65+):	11%	High School+ Education:	76%
Native:	1%	Bachelors+ Education:	15%
Industrial (U.S. Census, Year 2000 Data Collection)			
Population in labor force:	63%	Median income:	\$35,884
Top 5 Industries:	19%	Manufacturing	
	18%	Educational, health and social services	
	12%	Retail trade	
	10%	Construction	
	6%	Professional, scientific, management, administrative, and waste management services	
Presidentially-Declared Disasters (FEMA Region X)			
Flood-Related Countywide Total (Coastal/Severe Storms, Flooding, Land/Mudslides):	0		
Other Hazards:	None		
Insurance (FEMA Community Information System)			
Total Policies:	170	Total Premiums:	\$ 107,539
A Zone Policies:	121	Total Coverage:	\$ 36,089,300
V Zone Policies:	0		
Mitigation Plans (FEMA Region X, January 2011)			
Canyon County All-Hazards Mitigation Plan	Effective:	4/17/2007	
	Expires:	4/15/2012	
Idaho State Hazard Mitigation Plan	Effective:	11/2/2010	
	Expires:	11/2/2013	
Mitigation Projects (FEMA, data.gov): None identified			
Environmentally Sensitive Areas (FEMA RX, State and local data)			
Endangered/Critical Species:	None identified		
Wetlands/Shorelines:	None identified		
CoBRAs and OPAs:	None identified		
Tribal Areas (Bureau of Land Management): None identified			

Map 2. Image of Interview Reference Map for Canyon County, Lower Boise Watershed



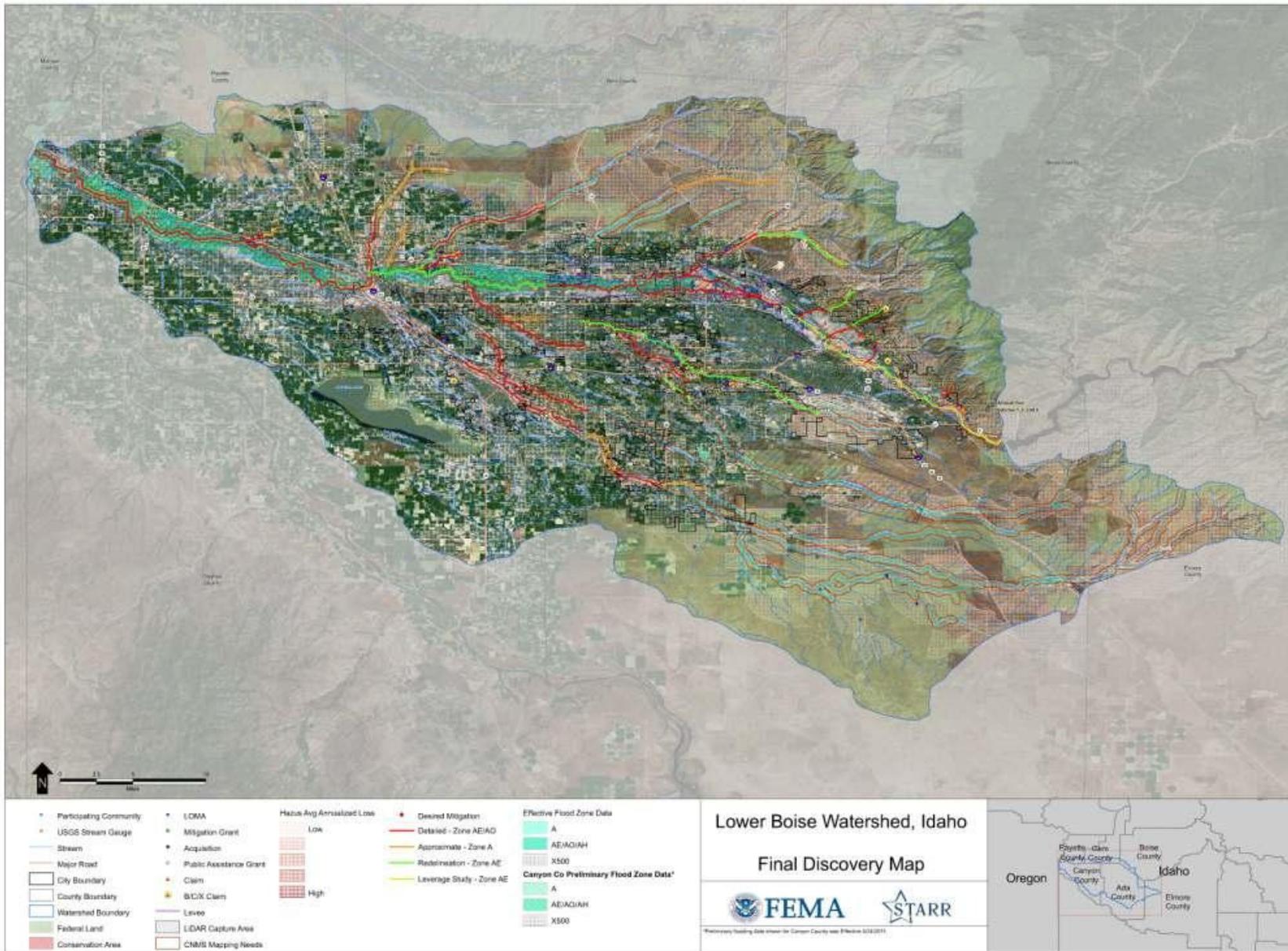
The third step was to hold a watershed-wide Discovery Meeting and facilitate discussion and data analysis of study needs, mitigation project needs, desired compliance support, and local flood risk awareness efforts. The discussion was stimulated using the Discovery Geodatabase display of relevant data. 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 Lower Boise Watershed 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 Lower Boise Watershed Final Discovery Map



III. 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 Lower Boise Watershed communities that can be considered Risk MAP Needs, which could be addressed with a Risk MAP project. Details and background on all issues can be found in the interview notes, meeting notes, and other files included in the appendix.

i. Floodplain Studies

The Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) for Canyon County and its incorporated communities were recently updated in May 2011, while Ada County's were last updated in 2003. Gem, Payette, Boise, and Elmore County's FIS and FIRMs were last updated in 1977, 1983, 1988, and 1994, respectively. Combined, the Lower Boise Watershed communities have detailed, limited detailed, and approximate riverine analysis. The last NFIP mapping meeting in the watershed was an intermediate CCO Meeting held in February 2008 for the latest county-wide update in Canyon County, and prior to that it was a 1993 meeting for Canyon County.

The Final Discovery Map should be referenced to view spatial data that may be indicative of study needs. The CNMS data suggested that a number of flooding sources in the watershed should be updated. Two flood insurance claims have been made in the B, C, or X zones in the Lower Boise Watershed, both occurring in Garden City. Two repetitive losses were also identified in the Garden City. There have been scattered LOMAs issued across the watershed, particularly in Ada County along the Boise River and Five Mile Creek, which both have been identified as needing either a new study or a redelineation of existing Zone AE.

Light Detection and Ranging (LiDAR) data has been collected along the entire reach of the Boise River and most lower portions of its main tributaries. The existing data, along with additional planned LiDAR capture areas, will be available for new studies through the Idaho Department of Water Resources. Ada County noted that they have countywide two-foot contour data available and have submitted the information to FEMA.

Levees were identified through a combination of local floodplain administrator interviews, the U.S. Army Corps of Engineers (USACE) National Levee Database, FEMA's Regional Flood Hazard Layers, and the Mid-Term Levee Inventory. None of the levees are known to be compliant with 44 CFR 65.10.

There is a considerable number of data layers available from communities in the watershed. These layers are detailed in the Data Sources table in the tabular data in the appendix.

Some areas were identified as needing a detailed AE or approximate A study, an AO restudy, a redelineation based on updated topographic data, or incorporated an on-going study (i.e. Leverage Study). These locations are generally described below and are shown on the Final Discovery Map.

Table 1: Lower Boise Watershed Mapping Needs

STUDY AREA	STUDY LENGTH (miles)	LOCATION DESCRIPTION	STUDY TYPE	PRIORITY
Boise River – Lower	25.0	From Snake River confluence to Interstate 84 at Caldwell	Zone AE	High
Boise River – Middle	11.1	From Interstate 84 upstream to Canyon County border	Zone AE Redelineation	Medium
Lower Conway Gulch	1.0	Through Notus city limits	Zone AE	Low
Upper Conway Gulch	1.1	From Notus city limits to origin of stream	Zone A	Low
Lower C-Line Canal	4.5	From confluence with Boise River to Galloway Rd	Zone AE	High
Upper C-Line Canal	4.1	Existing Zone A area from Galloway Rd to Gem County	Zone A	Low
West C-Line Canal	1.8	Existing Zone A area from confluence with C-Line Canal west	Zone A	Low
East Hartley Gulch	3.3	Existing Zone A area from Boise River upstream 3.3 miles	Zone A	Low
Lower Willow Creek (included in Lower and Upper, below)	1.9	From confluence with Boise River through Middleton city limits	Zone AE study (or redelineation – shown on map)	High
“Lower and Upper” Willow Creek	8.8	From confluence with Boise River to county border	Zone AE	Medium
Mill Slough	1.6	Through Middleton city limits	Zone AE	High
Fifteenmile Creek	3.7	From confluence with Boise River to confluence of Five and Tenmile Creeks	Zone AE	High
Lower Fivemile Creek	2.1	From confluence with Fifteenmile Creek to county border	Zone A	Low
Tenmile Creek	5.0	From confluence with Fifteenmile Creek to county border	Zone AE	High
Mason Creek	9.1	From Midland Blvd. to the county border	Zone AE	High
Indian Creek - Nampa	8.4	From lower Nampa city limit to county border	Zone AE	High
Boise River - Upper	14.9	From Ada County border to the head of Eagle Island, including Eagle Island Split	Zone AE	High
Boise River – USACE	4.0	From Eagle Island to Lucky Peak Dam	Leverage Zone AE	High
Lower Dry Creek	4.9	From confluence with Boise River to Highway 55	Zone AE	High

STUDY AREA	STUDY LENGTH (miles)	LOCATION DESCRIPTION	STUDY TYPE	PRIORITY
Upper Dry Creek	2.7	From Highway 55 to Daniel's Cr confluence	Zone AE Redelineation	High
Stewart Gulch	2.0	Existing Zone AE reach east of Boise	Zone AE Redelineation	Low
Crane Creek	2.0	Existing Zone AE reach east of Boise	Zone AE Redelineation	Low
Stewart Gulch – Alluvial Fan	1.7	Existing AO reach east of Boise	Zone AO Restudy	Low
Crane Creek – Alluvial Fan	1.6	Existing AO reach east of Boise	Zone AO Restudy	Low
Hulls Gulch – Alluvial Fan	0.2	Existing AO reach east of Boise	Zone AO Restudy	Low
Cottonwood Creek – Alluvial Fan	1.2	Existing AO reach east of Boise	Zone AO Restudy	Low
Squaw Creek – Alluvial Fan	0.9	Lower Squaw Creek	Zone AO	Low
Maynard Gulch – Alluvial Fan	0.3	Lower Maynard Gulch	Zone AO	Low
Unnamed Tributary-1	0.2	Southeast Boise near Warm Springs Rd and Glacier Dr	Zone A	Low
Unnamed Tributary-2	0.2	Southeast Boise near Warm Springs Rd and Glacier Dr	Zone A	Low
Unnamed Tributary-3	0.2	Southeast Boise near Warm Springs Rd and Glacier Dr	Zone A	Low
Nine Mile Creek	5.9	From Fivemile Cr confluence extending approximately 5.9 miles upstream	Zone AE	High
Upper Five Mile Creek	15.4	Existing Zone AE reach, from Ada County border upstream approximately 15.4 miles	Zone AE Redelineation	Medium
Ten Mile Creek - Meridian	2.3	Existing Zone AE near southern Meridian	Zone AE Redelineation	Medium
Indian Creek – Kuna	2.7	Within Kuna city limits	Zone AE	High
Lower Indian Creek	4.5	From the Ada County border extending upstream to the lower Kuna city limit	Zone A	High
Upper Indian Creek	1.9	From the upper Kuna city limit extending upstream to S. Eagle Rd	Zone A	High
Big Gulch Creek	5.3	From Willow Cr Rd extending 7 miles upstream	Zone A	High

STUDY AREA	STUDY LENGTH (miles)	LOCATION DESCRIPTION	STUDY TYPE	PRIORITY
Mayfield – Indian Creek	3.8	North of Mayfield in Elmore County	Zone A	Medium
Mayfield – Slater Creek	2.5	North of Mayfield in Elmore County	Zone A	Medium
Mayfield – Unnamed Tributary	3.4	North of Mayfield in Elmore County	Zone A	Medium

ii. Mitigation Projects

Each of the counties in the watershed have prepared *All Hazard Mitigation Plans (HMP)*. Ada County’s HMP, which has been adopted by the cities of Boise, Eagle, Garden City, Meridian, Kuna, and Star, became effective in November 2006 and expires in November 2011. The Ada City – County Emergency Management (ACCEM) is currently in the process of updating the effective HMP. ACCEM is a special purpose Emergency Management government unit and is currently contracting to create a Hazus-MH5 Level 2 economic loss model and edge-matching several depth grids (USACE, FEMA, IDWR, etc) to create a seamless topographic profile of a dominant portion of the floodplains in the watershed. Both of these products are highly useful for floodplain management and these local activities and products could be utilized in developing potential Risk MAP products. Further Risk MAP activities should do so with constant communication with the ACCEM.

Canyon County’s HMP became effective in April 2007 and expires in April 2012, and has been adopted by the cities of Nampa, Notus, Middleton, Parma, and Caldwell. Elmore and Boise County’s respective HMPs became effective in November 2006 and will expire in November 2011. Gem and Payette County’s respective HMPs became effective in February 2006 and will expire in February 2011.

The communities identified the following desired mitigation projects, which should be included in each community’s HMP update:

- North Lake Lowell Culverts – the city of Caldwell desires to evaluate the drainage structures located in the area north of Lake Lowell for possible upgrades and improvements.
- Eagle Island Split – the city of Eagle desires multiple split flow scenarios be modeled at the head of Eagle Island for an advisory and planning tool.
- Five Mile Creek Culvert – the city of Boise desires to replace an undersized culvert at South Cloverdale Road that backs up flows in Five Mile Creek. The ACHD has data available on the existing crossing.
- Ten Mile Creek Culvert – effective floodplain maps display a bottleneck affect at Locust Grove Road, suggesting that the existing culvert should be replaced to alleviate flooding concerns upstream of the crossing.

Additionally, some concern was expressed by the communities regarding the potential risks associated with canal breaches. Although a specific mitigation project was not identified, the

communities did show interest in developing a Risk MAP product to evaluate the risk for canal breaches throughout the watershed.

iii. Compliance

Data collected from CIS indicated that none of the communities in the Lower Boise Watershed had any variances to their floodplain management ordinances, so it may be assumed that the communities are regulating to at least the minimum criteria required by FEMA. The most recent FEMA Community Assistance Contact/Visit (CAC or CAV) was in March 2010 with the city of Meridian, prior to that was a June 2009 CAC with Canyon County. No trainings or other compliance support were requested.

iv. 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 flood risk communication program. Currently, six of the communities in the watershed participate in the Community Rating System program, including Ada, Elmore, and Gem Counties, and the cities of Boise, Eagle, and Garden City. As part of a future Risk MAP project, one activity might include working with communities and the FEMA Regional Office to determine good CRS candidates, especially communities that already keep Elevation Certificates, and providing contact information with the ISO Representative. Canyon County, Middleton, and Meridian might be especially interested in the CRS program, as they combine for nearly 400 flood insurance policies with a total annual premium of approximately \$255,000.

Almost the entire population within the Lower Boise Watershed is contained in Canyon and Ada Counties. Only small portions of Boise, Gem, and Payette Counties lie within the watershed boundary and mostly consist of federal, undeveloped lands with no flooding sources. Ada and Canyon Counties experienced significant growth since the 2000 Census was published. For instance, Ada County grew from 300,904 residents in 2000 to 384,656 residents in 2009, and Canyon County grew from 131,441 residents in 2000 to 186,615 in 2009 (2010 Census data was not available). Many of the incorporated communities indicated during interviews that significant sprawl development has occurred over the last decade, with development activities nearly halting around 2008. According to the 2000 census, the combined Canyon and Ada County median age of residents is 32 years, with approximately 10% of the population over 65 years old, an average of 5% non-English speakers, and less than 1% Native Americans. Approximately 86% of the population holds a high school diploma and around 26% have a college degree. Roughly 67% of residents over age 16 that desired employment were working, with a median annual income of approximately \$43,022. Residents across the watershed work primarily in educational, health, and social services, as well as manufacturing. The demographic data indicates a potential need to establish special outreach strategies tailored toward Hispanic populations, particularly in the cities of Nampa and Caldwell (combined 16% non-English speaking population).

Elmore County has very few residents within the watershed; however, large developments are being proposed for the area near Mayfield. The county expects that up to 70,000 homes could be proposed, indicating a strong need for accurate floodplain maps in order to properly plan and manage the developments. Elmore County did not attend the Discovery meeting.

IV. 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 events. They identified several areas for map updates and areas in which they could use additional FEMA support. It is recommended that the guidance document outlining the types of Mitigation Planning Technical Support that can be included in Risk MAP projects be evaluated with communities, once finalized. There are levees in the watershed do not meet accreditation requirements, so the initiation of levee outreach well before any mapping project begins would be beneficial to the residents, local officials, and FEMA in avoiding confusion or appeals. The local officials in the Lower Boise Watershed would benefit from the implementation of Risk MAP projects.

V. Appendix – Discovery Files

Communications

- Contacts
 - Stakeholders
 - Notification Dates
- Notifications/Invitations
 - A National Notification
 - B Regional Notification
 - C State Legislator Notification
 - C Congressional Notification
 - D Community Notification
 - E Floodplain Administrator Interview Request
 - Meeting Notes Distribution
 - Meeting Reminder

Community Interviews

- Fact Sheet
- ***Interview Reference Maps***
- Interview Notes

Discovery Meeting

- Agenda
- Presentation
- Sign-In Sheet
- ***Discovery Meeting Map***
- Meeting Notes
- Sample Project Charter

Report

- Report
- ***Project Area Map***
- ***Final Discovery Map***
- Tabular Data, including Data Sources and Mapping Needs
- Geodatabase
- Database Updates