

# Discovery Report

FEMA Region X

City and Borough of Sitka, Alaska

\*(Watershed Name, HUC-8 Code): Baranof Island, HUC 19010212; Chichagof Island, HUC 19010211 and Icy Strait-Chatham Strait, HUC 19010500



# FEMA

Prepared by



## TABLE OF CONTENTS

I.	Discovery and Risk Map	3
II.	Borough Descriptions	3-4
III.	Project Description and Methodology	5-9
IV.	Risk MAP Needs	10
i.	Current Studies and Plans	10
ii.	Hazard Events	11-16
iii.	Mitigation Projects and Other Relevant Data	16-18
V.	Compliance	19
VI.	Communications	19
VII.	Close	19-20
VIII.	Appendix – Discovery Files	20-21

## TABLES

1.	Community Participation List	3
2.	Data Sources for Region X Discovery	5
3.	Hazard Mitigation Plans Obtained in the City and Borough of Sitka	10
4.	Effective FIRM dates for the City and Borough of Sitka	10
5.	City and Borough of Sitka Wildfire Risk	11
6.	City and Borough of Sitka Earthquake Risk	11
7.	City and Borough of Sitka Landslide Risk	12
8.	City and Borough of Sitka Flood and Erosion Risk	13
9.	City and Borough of Sitka Avalanche Risk	14
10.	City and Borough of Sitka Tsunami Risk	15
11.	City and Borough of Sitka Severe Storm Risk	15
12.	City and Borough of Sitka Drought Risk	16
13.	Listing of Various Mitigation Projects in the City and Borough of Sitka	16-17
14.	Complete List of Identified Areas of Concern	17
15.	LiDAR data Funded for Acquisition	18
16.	Flood Studies or Mapping Funded in FY13	20
17.	Non-Regulatory Products Funded in FY13	20
18.	Outreach Meetings Funded in FY13	20

## FIGURES

1.	Reference Map	4
2.	Example of Community Fact Sheet	6
3.	Example of Reference Map Used at the Discovery In-Person Meetings	8
4.	Image of the City and Borough of Sitka Final Discovery Map	9
5.	Earthquake Data	12
6.	Floodplain Data for the City and Borough of Sitka	14
7.	Location of LiDAR data in the City and Borough of Sitka	18

# 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 futures mitigation activities;
- supports communities within the watershed or Borough to develop a vision for its 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. Borough Description

## City and Borough of Sitka

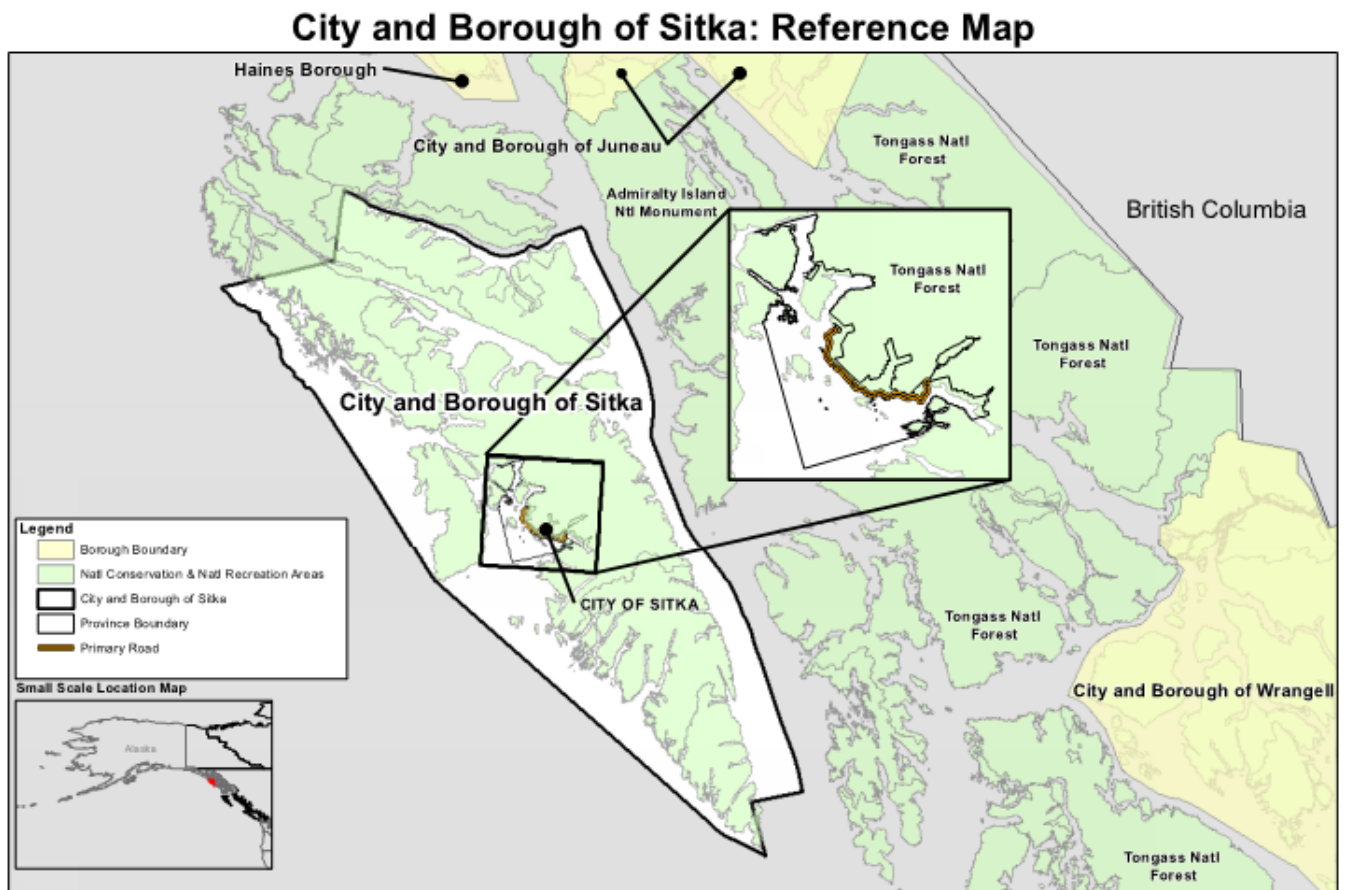
The City and Borough of Sitka is located on the outer coast of Baranof Island in Southeast Alaska, in Sitka Sound facing the Pacific Ocean. The borough has a total landmass of 2,874 square miles of land and 1,937.5 square miles of water. It is bordered by the Pacific Ocean on the west, Chatham Strait on the east and the southern half of Chichagof Island. Located approximately 95 miles southwest of Juneau, and 185 miles northwest of Ketchikan; it lies approximately 57.053060° North Latitude and -135.330° West Longitude. The Borough is completely within the Tongass National Forest. As of 2010, the borough had a population of 8,881 people. The vast majority of residents for the City and Borough of Sitka live in Sitka, the borough’s most populous city and the borough seat. The most prominent industries in the borough are educational services, health care, or social assistance. Approximately thirty-four percent of the total work labor force in the City and Borough of Sitka works in these industries. The majority of the borough’s population resides within the City of Sitka or areas along the coast. The City and Borough of Sitka encompasses Baranof Island.

The only jurisdiction in the City and Borough of Sitka to participate in the National Flood Insurance Program (NFIP) is the borough itself. The participating jurisdiction has regular participation status in the NFIP.

**Table 1. Community Participation List**

Community (CID)	Borough	Watershed	NFIP Status	CRS Class	Discovery Process Participation
City and Borough of Sitka (020006)	City and Borough of Sitka	Baranof Island, Chichagof Island and Icy Strait-Chatham Strait	Participating	N/A	Participating

Figure 1. Reference Map (Full Size in Appendix D)



### 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 project is appropriate, and if so, to collaborate on the project planning in detail. The Discovery process and requirements are defined in Appendix I – Discovery (June 2012), and Operating Guidance No. 04-11, Risk MAP Meetings Guidance (July 2011).

Region X initiated this Discovery effort in the spring of 2013, with 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. Collected data sources are shown in Table 2.

**Table 2. Data Sources for Region X Discovery (project-specific data sources in Appendix D)**

Alaska Department of Natural Resources	FEMA - Community Information System	
Alaska Interagency Coordination Center	FEMA - Community Needs Management Strategy (CNMS)	
Alaska State Geo-Spatial Data Clearinghouse	FEMA Regional Office	United States Department of Agriculture
City and Borough of Sitka GIS Department	National Atlas – United States Department of Interior	United States Geologic Survey
ESRI	Strategic Alliance for Risk Reduction (STARR)	
Federal Emergency Management Agency (FEMA)	United States Census - TIGER	

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. 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 Appendix C and D.

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. The phone interview included a webinar during which a map of the community was shared “on-screen” with participants. Communities were asked to identify “Areas of Concern” (AOC) based on their local knowledge and analysis of the data shown on the map. The webinar included functionality that allowed participants to draw graphics and/or text on-screen to share the AOCs specific

geographic location and any related details. The Areas and Points of Concern (mapping needs, desired mitigation projects, etc.) were documented in the Discovery Geodatabase. Discussing the AOCs during the phone interview allowed the Discovery team to narrow the focus of the upcoming in-person field visit and Discovery meeting to just those areas of local interest and/or concern, as explained in the third phase.

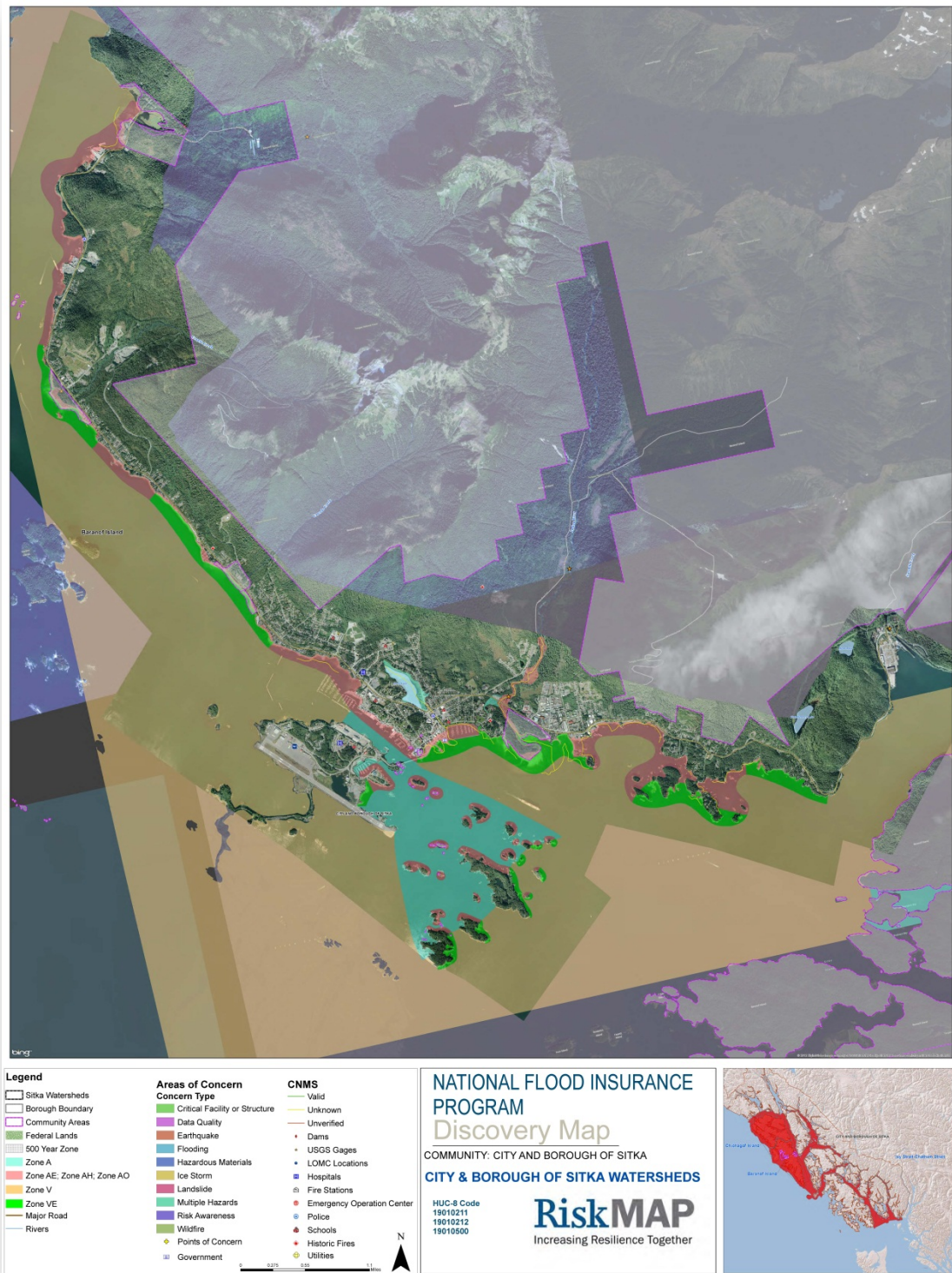
**Figure 2. Example of a Community Fact Sheet**  
(All Community Factsheets are located in Appendix B)

<b>Region X Discovery Factsheet</b>		<b>Watershed:</b> Multiple	
<b>For:</b> Sitka, City and Borough of, Alaska			
<b>FEMA Community Identification (CID) number:</b>		020006	
<b>Effective Flood Insurance Study (FIS) and/or Flood Insurance Rate Map (FIRM) (FEMA Map Service Center)</b>			
<b>Effective Date:</b>	09/29/2010		
<b>Floodplain Management Program (FEMA Community Information System)</b>			
<b>LOMCs:</b> 13	<b>CAC Date:</b> N/A	<b>CAV Date:</b> N/A	<b>Reg-Level:</b> N/A <b>Status:</b> Participating
<b>Community Rating System (CRS) Status (FEMA CRS Publication, May 2013)</b>			
<b>CRS Status:</b> N/A	<b>Class:</b> N/A	<b>Effective:</b> N/A	
<b>Demographics (U.S. Census)</b>			
<b>Total Population (Year 2010):</b> 8,881	<b>Language Other than English (%):</b> 11.7		
<b>Median Age:</b> 39	<b>High School graduate or higher (%):</b> 22.0		
<b>65 Years and Over (%):</b> 9.9	<b>Bachelors degree or higher (%):</b> 21.6		
<b>Native American (%):</b> 18.3			
<b>Industrial (U.S. Census, Year 2010)</b>			
<b>Population in Labor Force:</b> 5,340	<b>Median Income (Household):</b> \$69,798.00		
<b>Top Industry:</b> 33.5	Educational services, health care and social assistance		
<b>Presidentially- Declared Disasters</b>			
<b>Disaster Types:</b>	N/A		
<b>Most Recent Disaster:</b>	N/A		
<b>Most Recent Disaster Date:</b>			
<b>National Flood Insurance Program</b>			
<b>Total Policies:</b> 95	<b>A-Zone Policies:</b> 58	<b>Total Premiums:</b> \$115,043.00	<b>No. of Rep Losses:</b> 0
<b>No. of Variances:</b> 0	<b>No. of BCX Claims:</b> 0	<b>Total Coverage:</b> \$27,016,500.00	
<b>Levees and Other Flood Control Structures</b>			
No Levees in City/Borough; No certified coastal levees/seawalls; All breakwaters and armoring done with rubble rock			
<b>Environmentally Sensitive, Tribal, and Coastal Areas</b>			
<b>Environmentally Sensitive Areas Present:</b>	Yes		
<b>Tribal Areas Present:</b>	Unknown		
<b>Coastal Areas Present:</b>	Yes		
<b>Mitigation Plans</b>			
City & Borough of Sitka Multi-Hazard Mitigation Plan			
<b>Historical Mitigation Projects</b>			
<b>Project 1:</b>			
<b>Project 2:</b>			

The third phase in the Discovery effort was to hold a community-specific Discovery Meeting to facilitate discussion and analysis of study needs, mitigation project needs, desired compliance and training support, and local flood risk awareness efforts. During the Discovery Meeting, FEMA, the State of Alaska, and STARR, FEMA's contractor, collaborated with each of the communities that are participating in this effort. The purpose of the meeting was to meet the community officials involved in the Discovery effort, continue the discussions that were started during the community interview, and collect additional community data that could aid in the Discovery effort. Conducting the local Discovery meetings added an opportunity for additional stakeholders to participate in the Discovery process that may not have been available for the initial phone interview. The local Discovery meetings allowed for the Discovery team to confirm or build upon the information recorded during the phone interview. In conjunction with the community-specific Discovery meeting, a local field tour was conducted during which a local official took FEMA, the State of Alaska, and STARR to visit some areas of concern mentioned during the Discovery phone interview or in-person Discovery meeting. Physically visiting the sites allowed the Discovery team to collect additional notes and/or pictures regarding the communities' concerns and gain a geographic understanding and deeper appreciation of these areas of concern.



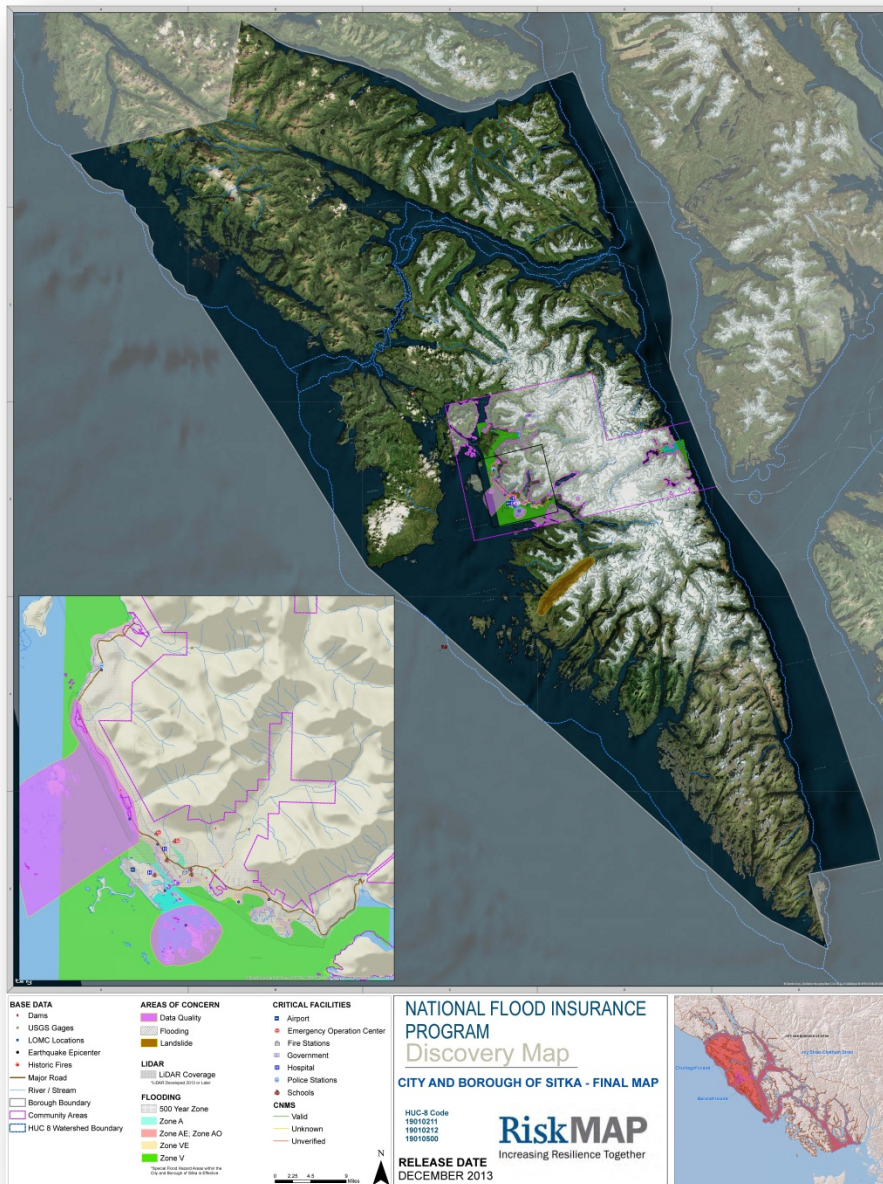
**Figure 3. Example of a Reference Map used at the Discovery In-Person Meetings**  
 (All Community Reference Maps can be found in Appendix C)





The fourth phase of the Discovery effort involves an analysis of the data and information collected during the interviews and subsequent community visits and also may include recommendations as to the future relationship and activities between FEMA and the communities. The Final Discovery Map indicates desired study areas and mitigation project locations, and the Discovery Report documents the results of data collection process. Discovery will be concluded with the finalization of a project scope and signed Partnership Agreements, which indicate that all affected stakeholders understand the terms of a funded project, including communication and data responsibilities.

**Figure 4. Image of the City and Borough of Sitka Final Discovery Map**  
*(Final Discovery Map is also located in Appendix D)*



## IV. Risk MAP Needs

The results of the data collection and interview were thoroughly discussed at the Discovery Meeting. The following sections include issues and conditions that exist in the City and Borough of Sitka that can be considered Risk MAP needs, and could be addressed with future Risk MAP projects. Details and background on all issues can be found in the interview notes, meeting notes, Hazard Mitigation Plans (HMPs), and other files included in Appendix B and C.

### i. Current Studies and Plans

#### Hazard Mitigation

The Disaster Mitigation Act of 2000 (P.L. 106-300; 42 USC 5131 ff.) and the Federal Emergency Management Agency’s subsequent Interim Final Rule, [44 CFR Part 201](#), requires all states and communities to develop natural hazard mitigation plans in order to be eligible for federal Pre-Disaster Mitigation Grant funds and/or post-disaster Hazard Mitigation Grant Program funds. Hazard mitigation plans obtained through Discovery are identified in the table below:

**Table 3. Hazard Mitigation Plans Obtained in the City and Borough of Sitka**

Community	Borough	Plan Name	Date Adopted	Notes
City and Borough of Sitka	City and Borough of Sitka	City & Borough of Sitka Multi-Hazard Mitigation Plan	April 20, 2010	Expires on April 20, 2015

#### Floodplain Studies

Production of borough-wide Flood Insurance Rate Maps (FIRMs) and a Flood Insurance Study (FIS) for the City and Borough of Sitka began during Map Modernization. The current status for effective flood maps within the City and Borough of Sitka can be found in the table below.

**Table 4. Effective FIRM dates for the City and Borough of Sitka**

Community (CID)	Effective FIRM	Study Type
<b>City and Borough of Sitka (020006)</b>	09/29/2010	Coastal and Riverine Studies & Lacustrine Approximate Study

FEMA’s Coordinated Needs Management Strategy (CNMS) database was created in 2011 for Region X to coordinate the management of future floodplain mapping needs. This database tracks and identifies the status and needs of existing floodplain studies based on change indicators that may have occurred since the date of the analysis to help prioritize future floodplain study needs. Currently, validation for streams in the City and Borough of Sitka are unknown. CNMS data can be viewed on the FINAL Discovery Maps. The FY13 Risk MAP project for the City and Borough of Sitka is scoped to address the unknown flood studies identified in CNMS with new flood studies. After the FY13 Risk MAP project is completed, the CNMS database will be updated to reflect the new flood study categorizations as valid.

## ii. Hazard Events

### Wildfires

Wildfire risk within the City and Borough of Sitka is fairly minor with the very wet conditions typical for the area.

**Table 5. City and Borough of Sitka Wildfire Risk**

Community	Borough	Notes
City and Borough of Sitka	City and Borough of Sitka	•N/A

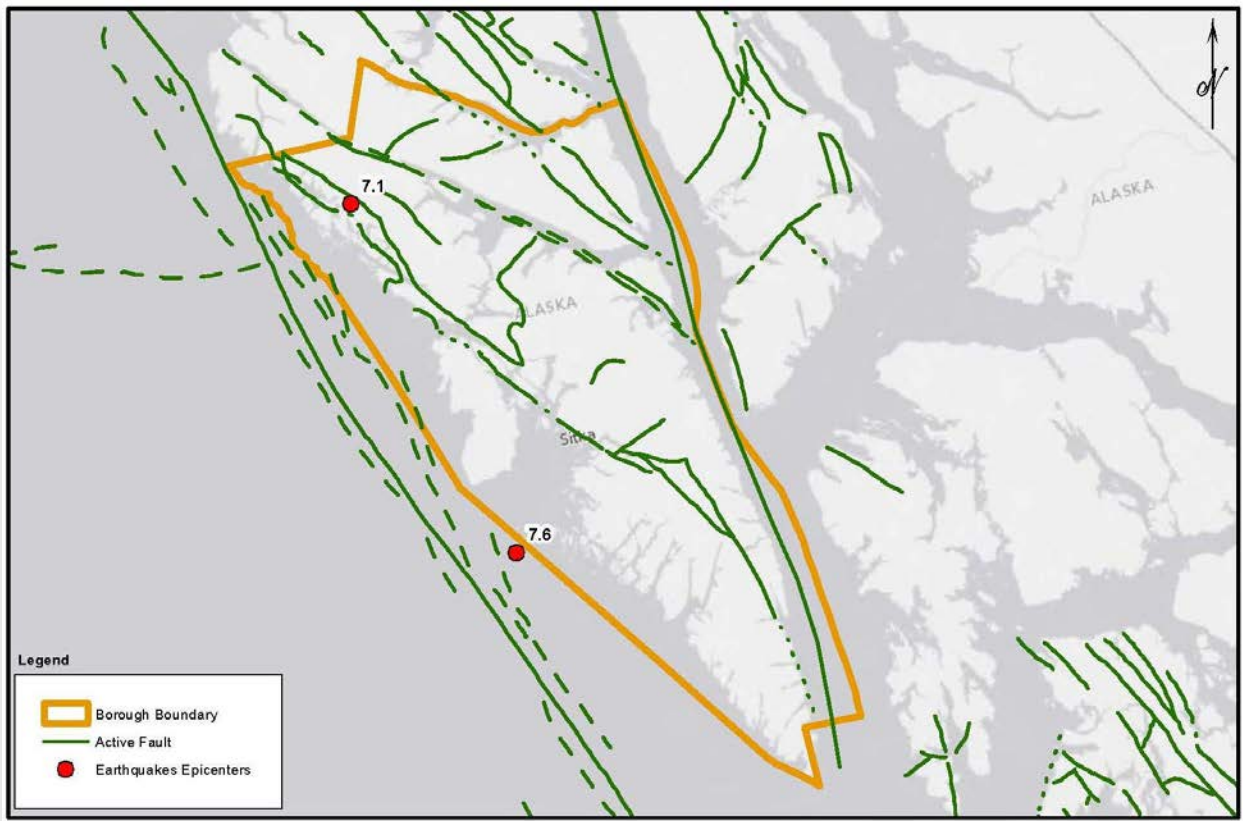
### Earthquakes

The City and Borough of Sitka has experienced historic earthquakes and have several fault lines. A common concern for the community is that many of their critical buildings have not been retrofitted to withstand the impact of an earthquake. Information on fault lines, earthquake events, and specific details on earthquake awareness was collected from the community and is shown in the table below. A much larger area of earthquake risk is created by the Queen Charlotte Triple Junction which is formed by the Cascadia Subduction Zone, the Explorer Ridge and the Queen Charlotte Fault. The Queen Charlotte-Fairweather Fault presents the greatest earthquake hazard to residents of southeast Alaska.

**Table 6. City and Borough of Sitka Earthquake Risk**

Community	Borough	Notes
City and Borough of Sitka	City and Borough of Sitka	<ul style="list-style-type: none"> <li>•Most recent activity (Jan. 2013) off of Queen Charlotte Fault – 120 miles SW of Sitka, off of Prince of Wales Island, 7.2-7.5 magnitude, Tsunami warning and full evacuation of Sitka occurred – No infrastructure damage.</li> <li>•Not as common as they are in other areas of Alaska, but not unprecedented and the slip slide faults can release a lot of energy quickly.</li> </ul>

**Figure 5. Earthquake Data**



**Landslides**

Landslides can include a wide range of ground movements and can occur in the City and Borough of Sitka. The community expressed concern about the potential damage that landslides could have on residential communities and roads. The table below summarizes the specific concerns that the City and Borough of Sitka and the locations of where landslides could occur and have occurred.

**Table 7. City and Borough of Sitka Landslide Risk**

Community	Borough	Notes
City and Borough of Sitka	City and Borough of Sitka	<ul style="list-style-type: none"> <li>• Significant landslides near Halibut Point Road, destroyed City Shop years ago.</li> <li>• Other slides have knocked homes off of foundations.</li> <li>• No restricted development in slide areas.</li> <li>• Forest Service cabin (SW Sitka) at Redoubt Lake was destroyed by slide.</li> </ul>

Flooding and Erosion

Several issues were addressed that concerned flooding and erosion. They included inaccuracies of floodplain representation on effective FIRMs and areas where flooding could damage public and private property. Table 8 identifies flooding and erosion concerns as they pertain to the community.

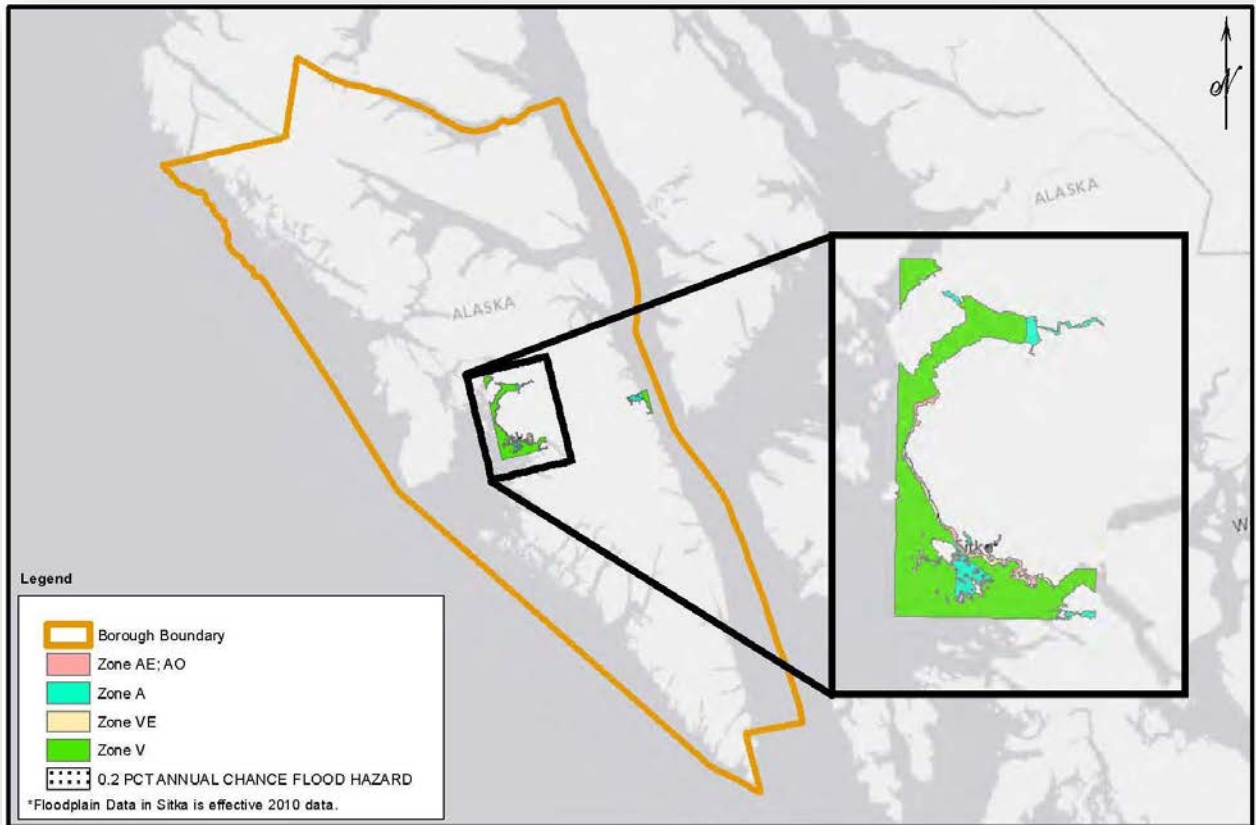
There have been a total of 5 flood insurance claims made in the City and Borough of Sitka since 1978. There were zero repetitive losses that have been identified in the City and Borough of Sitka. A total of 7 Letters of Map Change (LOMC) have been issued across the Borough with many near the coast on the western side of the Borough. Locations of LOMCs in each county can be found on the Final Discovery Maps (Appendix D).

**Table 8. City and Borough of Sitka Flood and Erosion Risk**

Community	Borough	Notes
City and Borough of Sitka	City and Borough of Sitka	<ul style="list-style-type: none"> <li>• Local representatives felt the effective DFIRM maps overstate the flood risk along the entire mapped coast and therefore the coast needs to be restudied.</li> <li>• Locals feel there isn't significant coastal flooding in Sitka.</li> <li>• No known past claims that are outside of mapped SFHA.</li> <li>• No known Repetitive Loss properties.</li> <li>• Some infrastructure work in downtown area such as the library property located along the coast and the Hillside Development.</li> <li>• Not much severe run-up during big storms but some water occurs on highway near beach – no housing development in the area.</li> <li>• Airport runway gets debris deposited during high water events.</li> <li>• Isolated coastal erosion, sand spit between rock outcrops.</li> <li>• Water coming from mountains through town occasionally cause storm drain failures – ditches erode out, erosion around bridges.</li> <li>• Surface runoff does cause some road embankment erosion.</li> <li>• No coastal roads impacted by tides or waves.</li> <li>• Periodic cut-off of Blue Lake Road to municipal employees servicing hydro site due to erosion during high rainfall events. Road is eventually regraded after flood/erosion events.</li> </ul>



**Figure 6. Floodplain Data for the City and Borough of Sitka**



**Avalanche**

Avalanches can occur on any slope given the right conditions such as the time of year and weather patterns. Wintertime in particular is when a majority of the avalanches tend to occur, however, avalanches have been recorded every month out of the year. Due to the steep and rocky nature of the terrain in southeast Alaska, most development for communities in this region are restricted by steep mountain slopes and narrow strips of land along the coast. Table 9 identifies avalanche concerns as they pertain to the community.

**Table 9. City and Borough of Sitka Avalanche Risk**

Community	Borough	Notes
City and Borough of Sitka	City and Borough of Sitka	<ul style="list-style-type: none"> <li>Not an issue in the coastal areas but more inland due to steeper topography.</li> </ul>



## Tsunami

Tsunamis in the Southeast Alaska region typically occur when a large volume of a body of water, such as the ocean, is displaced due to earthquakes, volcanic eruptions or landslides. The City and Borough of Sitka has experienced several of these events dating back to the 1940's to the present day but no major damage to life or property has been recorded from these events. Table 10 identifies tsunami concerns as they pertain to the community.

**Table 10. City and Borough of Sitka Tsunami Risk**

Community	Borough	Notes
City and Borough of Sitka	City and Borough of Sitka	<ul style="list-style-type: none"><li>• University of Alaska, Fairbanks did a recent study that showed limited run-up.</li><li>• No run-up from Japan earthquake tsunami in 2012 but significant circulation of current in channel and harbor that lasted several hours – major amount of water moving around.</li><li>• 1964 earthquake may have caused tsunami damage but community is not certain, possibly more of a surge not run-up; buildings at the time were built on pilings over water.</li></ul>

## Severe Storms

This type of hazard can occur during any part of the year given the right weather pattern. A severe storm can result from severe wind or severe winter conditions. The community has experienced damage from these types of events and they continue to work towards mitigating the loss of life and property by communicating to the residents when impending weather is oncoming. Table 11 identifies severe storm concerns as they pertain to this community.

**Table 11. City and Borough of Sitka Severe Storm Risk**

Community	Borough	Notes
City and Borough of Sitka	City and Borough of Sitka	<ul style="list-style-type: none"><li>• Wind storms, massive low pressure systems have generated enough wave action to deposit debris across runway.</li><li>• Generally in November and coinciding with extreme high tide or typhoon remnants from Asia – small amounts of water have been reported in front of visitors center in Totem Park and over topping Halibut Point Road near Sandy Beach at its lowest elevation.</li><li>• Winter storms – trees blown down, power lines taken down by trees, homes damaged, long period of swells after a large storm event in Gulf have caused 3-4 foot waves in harbors but do not significantly affect the wave action in the harbor. High wind events can cause some wave action damage on rare occasions.</li></ul>

### Drought

Droughts in the Alaskan interior can and do happen but are generally not long lived over an extended period of time due to the amount of water that is available on the surface or underground. This event, though not impossible, would have some damaging effects on the community if one were to take place. Table 12 identifies drought concerns as they pertain to the community.

**Table 12. City and Borough of Sitka Drought Risk**

Community	Borough	Notes
City and Borough of Sitka	City and Borough of Sitka	<ul style="list-style-type: none"><li>• Hydroelectric power generation issues.</li><li>• Drinking water issues.</li><li>• Increased fire risk.</li></ul>

### iii. **Mitigation Projects and Other Relevant Data**

#### Mitigation Projects

There were several potential, desired, and in progress mitigation projects that were identified throughout the Discovery process. Most of these projects were identified through researching Hazard Mitigation Plans or speaking to community officials. Several of these projects are identified in Table 13 below. More information on mitigation projects can be found in Appendix B of this report.

**Table 13. Listing of Various Mitigation Projects in the City and Borough of Sitka**

City and Borough of Sitka
Flood/Erosion (FLD)
FLD-1. Identify drainage patterns and develop a comprehensive drainage system
FLD-2. Structure elevation and/or relocation
FLD-3. Updated FIRM Sitka Maps
FLD-4. Public education
FLD-5. Pursue obtaining a lower CRS rating to lower flood insurance rates
FLD-6. Continue to obtain flood insurance for all Borough structures, and continue compliance with NFIP
FLD-7. Require that all new structures be constructed according to NFIP requirements and set back from the shoreline to lessen future erosion concerns and costs
Earthquake (E)
E-1. Identify buildings and facilities that must be able to remain operable during and following an earthquake event
E-2. Contract a structural engineer firm to assess the identified buildings and facilities
E-3. Nonstructural mitigation projects (i.e. assessing whether heavy objects are tied down)
E-4. Conduct mock emergency exercises to identify response vulnerabilities
Snow Avalanche (S/A)
S/A-1. Prohibit new construction in avalanche areas
S/A-2. Utilize appropriate methods of structural avalanche control
S/A-3. Enact buyout of homes in avalanche paths
S/A-4. Install warning signage in mapped avalanche areas
S/A-5. Continue to educate public about avalanche hazards

**Table 13 Cont.**

## Tsunami (T)

T-1. Continued participation in the Tsunami Awareness Programs

T-2. Update Sitka Emergency Operations Plan, as needed, conduct Emergency Operation Plan exercises

T-3. Inundation mapping

## Severe Weather (SW)

SW-1. Conduct special awareness activities, such as Winter Weather Awareness Week, Flood Awareness Week, etc.

SW-2. Expand public awareness about NOAA Weather Radio for continuous weather broadcasts and warning tone alert capability

SW-3. Encourage weather resistant building construction materials and practices

## City of Sitka

Upgrading the hydroelectric dam that provides electricity to the City

Upgrading the road system throughout the City

Areas of Concern

As determined through correspondence with local community officials, the areas of concern list is displayed below by the community. The concerns are labeled with ID numbers corresponding to the specific concern's location on the Final Discovery Map. Areas of Concern (AOCs) were identified during both the Discovery Interviews and Discovery Meetings. AOCs identified at the Discovery Meeting will have "(Meeting)" at the end of their description.

Much of these areas were identified at a scale much larger than the scale of the Final Discovery Map, many AOCs were identified at a scale of less than 1:1,000. Therefore, some areas on the Final Discovery Map are difficult to individually identify. It is recommended that one examine the "Areas of Concern" feature class in ArcMap from the geodatabase. This feature class is located in the Discovery Geodatabase and the Appendix D folder. Viewing the AOC feature class in ArcMap will allow one to examine each AOC at a scale that is easily discernible.

**Table 14. Complete list of identified Areas of Concern**

Hazard	Issue or Description of Area	ID
<b>AOCs identified by the City and Borough of Sitka</b>		
Data Quality	Islands in the Sitka Sound would benefit from detailed analysis – wave run-up from SE is not a problem, run-up from SW is a bigger problem. Islands have high end housing development.	1
Data Quality	Island shadowing can cause differences in BFE between flood zones	2
Flooding	Wave run-up is not perceived to be an issue by the City/Borough even though Effective maps show otherwise	3
Flooding	Swan Lake is controlled by a culvert – Unnumbered Zone A with no BFE. This is a problem for homeowners refinancing. Needs new study or redelineation with BFE established which would benefit from new LiDAR.	4
Landslide	Landslide at Redoubt Lake which is located SW of Sitka. This event destroyed the Forest Service cabin.	5

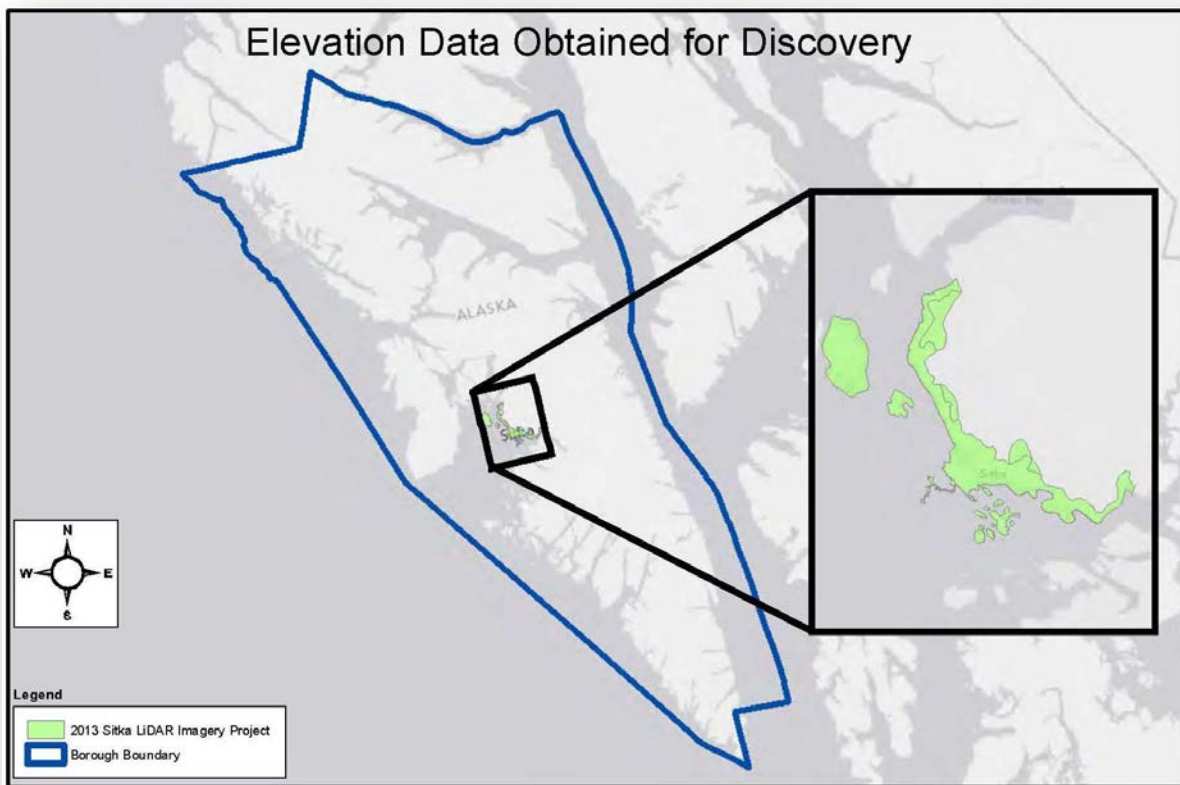
### LiDAR Data

It was determined during Discovery that the City and Borough of Sitka needed updated, detailed elevation data, and that local officials would be interested in FEMA funding the collection of local Light Detection and Ranging System (LiDAR) data. LiDAR data is being acquired for much of the Discovery project area through a partnership between FEMA and the Oregon Department of Geology and Mineral Industries (DOGAMI). DOGAMI specializes in supervising and coordinating the collection of large swaths of high resolution, high accuracy LiDAR data in the Pacific Northwest since 2006. LiDAR data is very useful in producing accurate, high-quality regulatory and non-regulatory NFIP projects. The map and table below provides some details about the LiDAR data being acquired for this Risk MAP project.

**Table 15. LiDAR data Funded for Acquisition**

Name	Date Collection Scheduled	Resolution
Sitka Coastal LiDAR	Spring/Summer 2014	2 feet

**Figure 7. Location of LiDAR data in the City and Borough of Sitka**



## V. Compliance

Data collected from CIS indicated that the City and Borough of Sitka did not have any variances to their floodplain management ordinances, so it may be assumed that the Borough is regulating to at least the minimum criteria required by the NFIP.

City and Borough of Sitka currently does not participate in the National Flood Insurance Program's (NFIP) Community Rating System (CRS). The CRS is the NFIP's voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. The Discovery and Risk MAP study processes are excellent opportunities for communities to evaluate their involvement in CRS.

## VI. Communications

During the Discovery Interview and Discovery Meeting, 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 hazard risk communications program.

Varying forms of communication strategies are currently in use throughout the City and Borough of Sitka for the purpose of reaching out to citizens in cases of emergency. These forms of communication include but are not limited to:

- Newspaper
- Official notes on the back of utility billings
- Public radio station
- Public service announcements
- Assembly meetings
- Planning Commission meetings

All compiled information on communication forms that the City and Borough of Sitka use can be found in the Meeting Minutes in Appendix B of this report.

To help communities improve their abilities in effectively communicating risks to the public, FEMA has offered to assist communities with this process through a variety of means such as providing HAZUS training and other information relating to HAZUS and providing outreach materials and regional newsletters on current FEMA activities.

## VII. Close

Local officials in the City and Borough of Sitka were very interested in the Risk MAP Discovery process and are open to learning more about how they can begin to develop resilience to all hazard events. Natural hazards cannot be avoided fully. Through Discovery and the Risk MAP process, communities can begin to develop resilience by increasing the desire to promote action to reduce the impacts of hazards and facilitate recovery. They identified several areas for FIRM updates and areas in which they could use additional FEMA support. Tables 14, 15 and 16 below outline the flood studies, mapping and non-regulatory products that FEMA was able to fund as

part of the FY13 City and Borough of Sitka, AK Risk MAP project. The flood studies and mapping listed in table 16 are funded under the FY13 contract through draft workmap status. This means the preliminary release and finalization of regulatory products will need to be funded with future fiscal year funding.

**Table 16. Flood Studies or Mapping Funded in FY13**

Flooding Source	Study Length	Study Type (Hydraulic Model Type, if applicable)
Swan Lake	0.67 miles	Approximate (Base Level, HEC-RAS)
Indian Creek	1 mile	Redelineation of Detailed Studies
Sitka Sound / Gulf of Alaska	32 miles	Detailed Coastal/Wave Hazard Analysis (12 proposed transects)

**Table 17. Non-Regulatory Products Funded in FY13**

<b>Non-Regulatory Product and/or Dataset</b>
Flood Risk Database - Changes Since Last FIRM (CSLF) Dataset
Flood Risk Database - Water Surface Elevation Grids
Flood Risk Database - Flood Depth Grids for 1% frequency event for coastal studies
Flood Risk Database - Areas of Mitigation Interest (AoMI) Dataset
<b>Non-Regulatory Product and/or Dataset</b>
Flood Risk Map
Flood Risk Report

**Table 18. Outreach Meetings Funded in FY13**

<b>Outreach Meeting</b>
Flood Engineering Review Meeting
Resilience Meeting

## VIII. Appendix – Discovery Files

### Communications (Appendix A)

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

### Community Interviews (Appendix B)

- Fact Sheets



- Interview Notes
- Locally-Provided Documents (i.e. Hazard Mitigation Plan(s))

#### Discovery Meeting (Appendix C)

- Agenda
- Presentation
- Sign-In Sheet
- **Discovery Meeting Map**
- Meeting Notes
- Draft Partnership Agreement

#### Report (Appendix D)

- Discovery Report
- **Project Area Map**
- **Final Discovery Map**
- Additional Resources
- Geodatabase
- Database Updates