Discovery Report

FEMA Region X

Kenai Peninsula Borough, Alaska

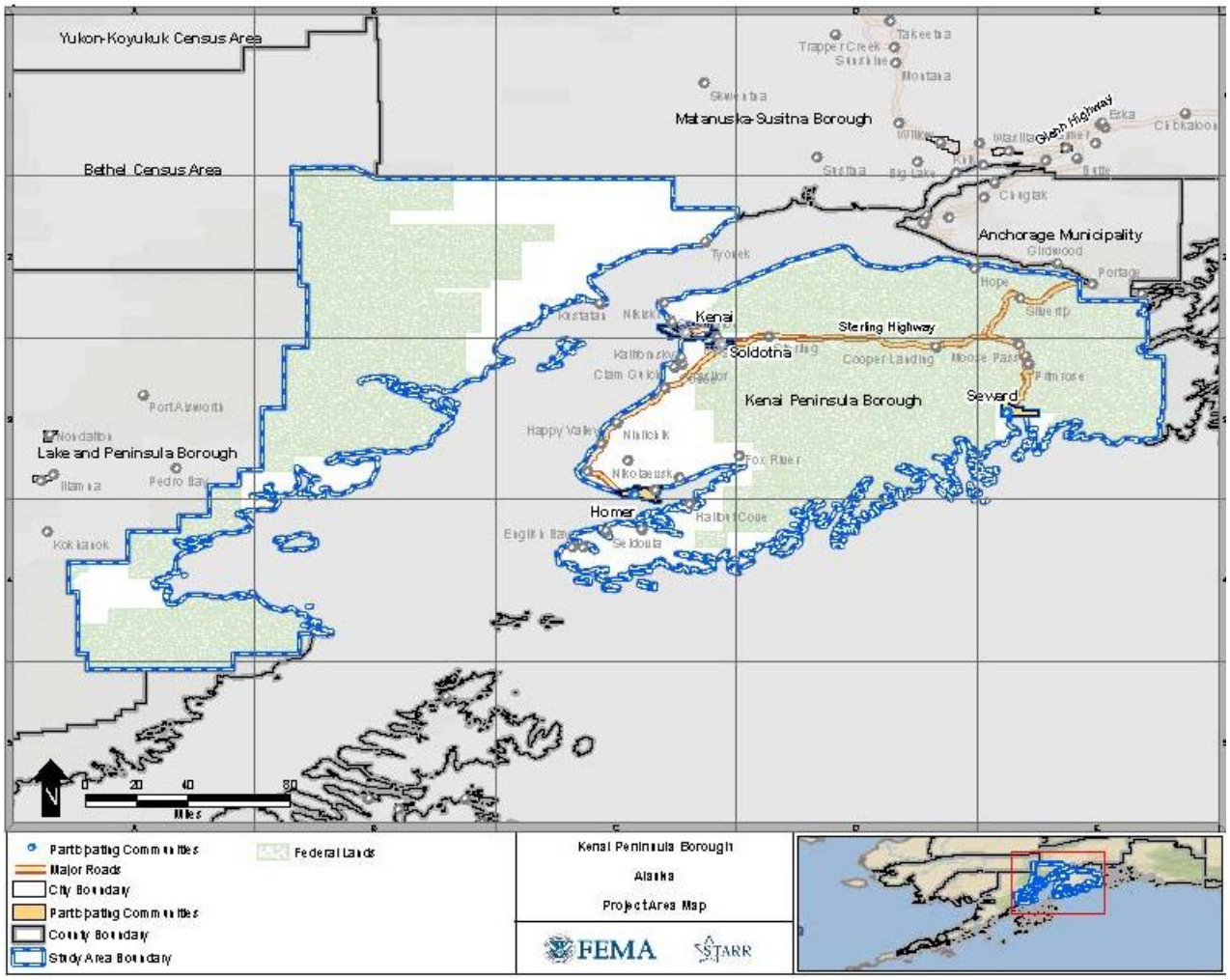
FEMA

Prepared by STARR

I. Watershed Description

The Kenai Peninsula Borough is located in south central Alaska with a total area of 16,000 square miles, composed of 35% water. The Kenai Peninsula Borough is bordered by the Gulf of Alaska and Prince William Sound to the south and east, with the Chigmit Mountains of the Alaska Range to the west. The Cook Inlet divides the borough into two land masses and the peninsula itself holds 99% of the borough's population and most of the development. The Kenai Mountains lie north and south through the peninsula, contrasting to the lowlands lying to their west. The west side of the Inlet is sparsely inhabited and contains recreational, oil, and gas development. National Flood Insurance Program (NFIP) participants in the Kenai Peninsula Borough include the borough, the city of Seward, and the city of Homer. No official designated tribal areas exist within the Kenai Peninsula Borough; however there are tribal villages that exist.

Map 1: Image of Kenai Peninsula Borough 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 watershed, 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 At this time, Discovery processes and requirements are still being defined; however, draft guidance is available from the draft *Appendix I – Discovery (fall 2010)*, and the draft *Meetings Guidance for FEMA Personnel (October 2010)*.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 Kenai Peninsula Borough.

RX Discovery 2010: Kenai Peninsula Borough Watershed
Fact Sheet: Kenai Peninsula Borough, Alaska

Page 1

CID:	020012	**FIS/FIRM:**	Effective Date:	12/6/1999
			Level of Study:	Detailed Study, V1 - V6, AE/floodway
			Last Community Meeting:	12/2/1998
LOMCs:	31		**Last CAV/CAC Date:**	08/05/2003, 10/09/2003

CRS Status

Class:	8	SFHA Discount:	10%
Effective:	4/1/2000	Non-SFHA Discount:	5%

Demographics

Population:	49,691	**Social Characteristics**	
Median Age:	36	Non-English Speakers:	3%
Elderly (65+):	7%	High School+ Education:	89%
Native:	8%	Bachelors+ Education:	20%

Industrial

Population in labor force:	55.4%
Median income:	$46,397
Top 5 Industries:	
Educational, health and social serv	20%
Retail trade	13%
Arts, entertainment, recreation, ac	11%
Agriculture, forestry, fishing and h	11%
Construction	9%

Presidentially-Declared Disasters

Flood-related total:	19	(August 1967 - October 2009)
Recent flood related:	10	(April 2002 - October 2009)

Other hazards: Earthquake, Fire, Severe Storms, Landslides, Mudslides, Tidal Surges, Severe Winter Storms, Coastal Erosion, High Winds, Severe freezing, Heavy rains and landslide, Avalanches

Insurance

Total Premiums:	$ 209,835	Variances:	0
Total Coverage:	$ 63,090,500	Rep Losses:	0
Total Policies:	309	BCX Zone Claims:	7
A Zone Policies:	217	A Zone Claims:	2
V Zone Policies:	0	AE/A# Zone Claims:	18
Retention:	47 policies, $429,285 coverage	V Zone Claims:	0
		D Zone Claims :	5

Mitigation Projects and Other Grants

Mitigation Projects: Resize and realign culverts on Daisy Hill Lane. Relocate existing road from top of river bank that is subject to erosion and washout. Construct berm and elevate existing track to provide 100 yr flood protection at MP 36 of Alaska Railroad. Improve the reliability of electrical power service to the town of Hope.

Mitigation Project: Removed danger trees from overhead electrical power lines – $30,128 Projet with 25% local cost share.

Mitigation Project: Divert hillside water runoff by cutting back slope and re-routing run-off to natural drainage away from hospital offices and reception area $96,360 with 25% local cost share

Mitigation Project: Relocate Kasilof River Road $187,406 with 25% local cost share

Mitigation Project: Install and replace out dated tsunami warning system $454,161 with 25% local cost share

Mitigation Project: Bishop property install well and septic $9,475 with 25% local cost share

Mitigation Project: Alaska Railroad Corporation, Salmon Creek RR Bridge Replacement $245,600 with 25% local cost share

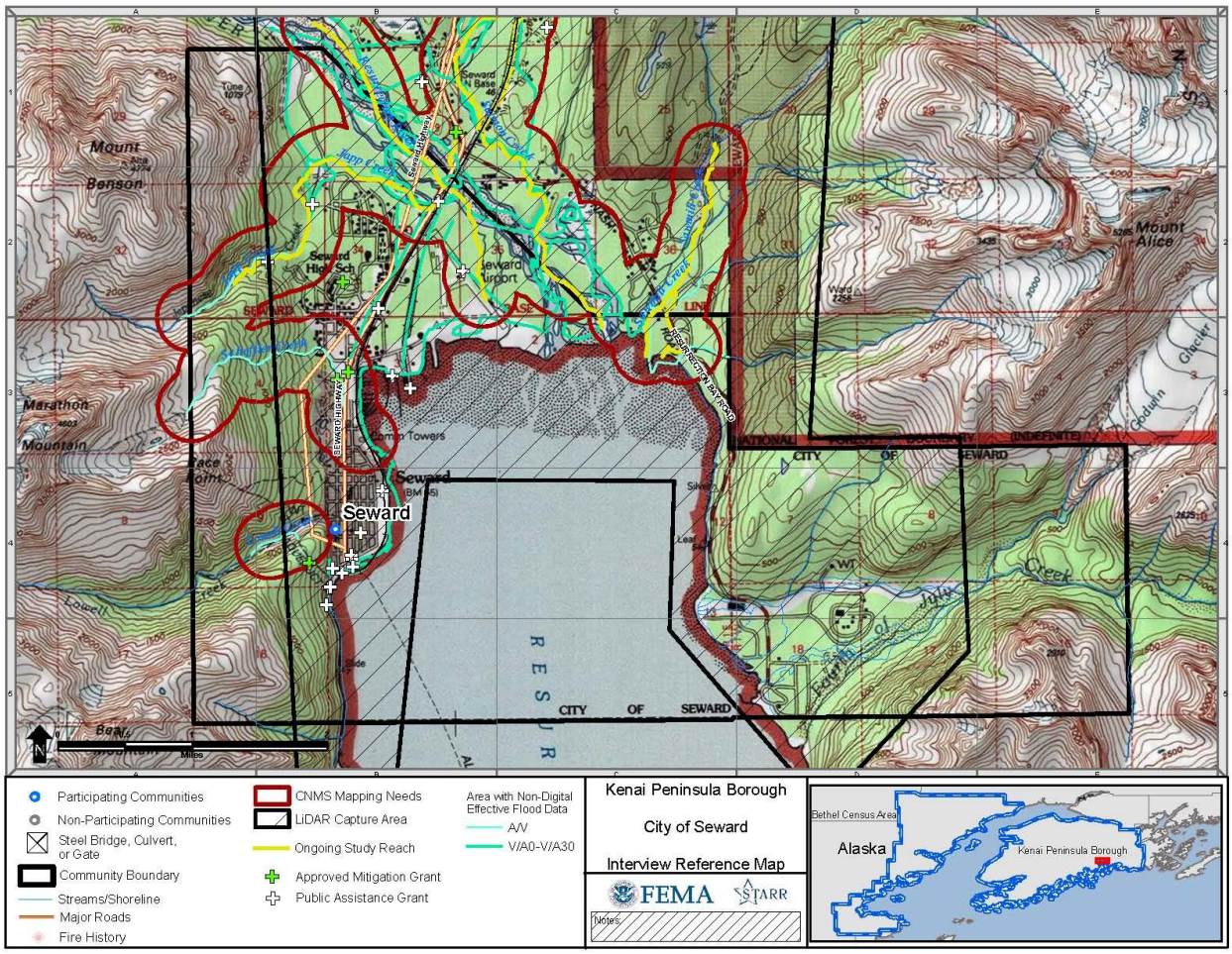
Mitigation Project: City of Seward, Culvert Upgrades and Elevation of Pump Station $297,779 with 25% local cost share

Mitigation Project: In order to improve the warning capabilities in flood hazard areas, the KPB would like to purchase three siren units to fit on the back of the fourwheel drive pickup truck to warn those not currenlty served by the boroughs $59,330 with 25% local cost share

Mitigation Project: Ressurection River Flood Reduction Project - Removeal of accreted debris near the river delta (companion projects include widening of upstream bridges and the construction/expansion of levees) $309,076 with 25% local cost share

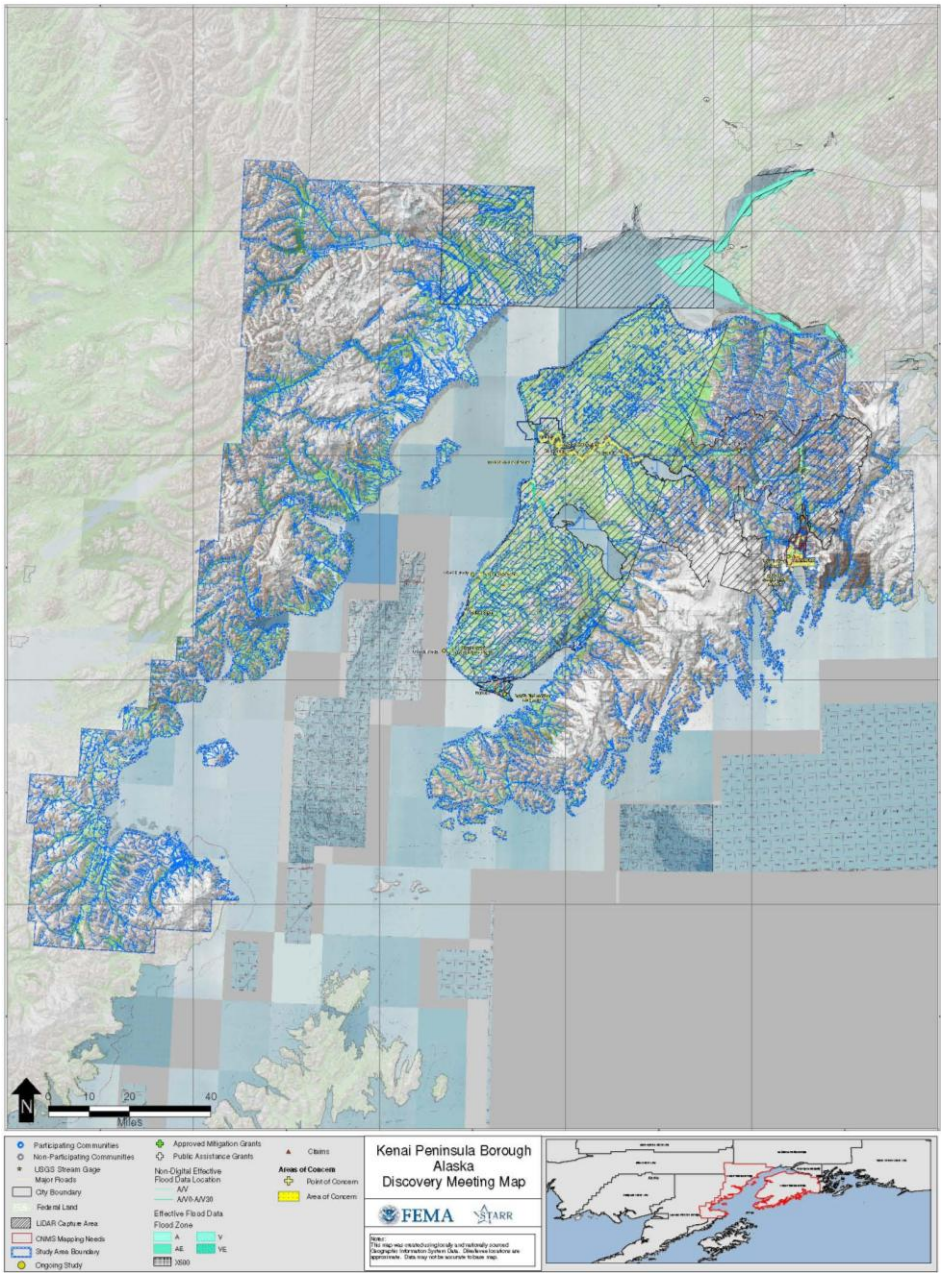
Mitigation Plans: Kenai Peninsula Borough All Hazards Mitigation Plan
Effective: August 2005
Expires: August 2010
*Note: This plan is being updated, in draft phase.

Map 2. Image of Interview Reference Map for Seward.



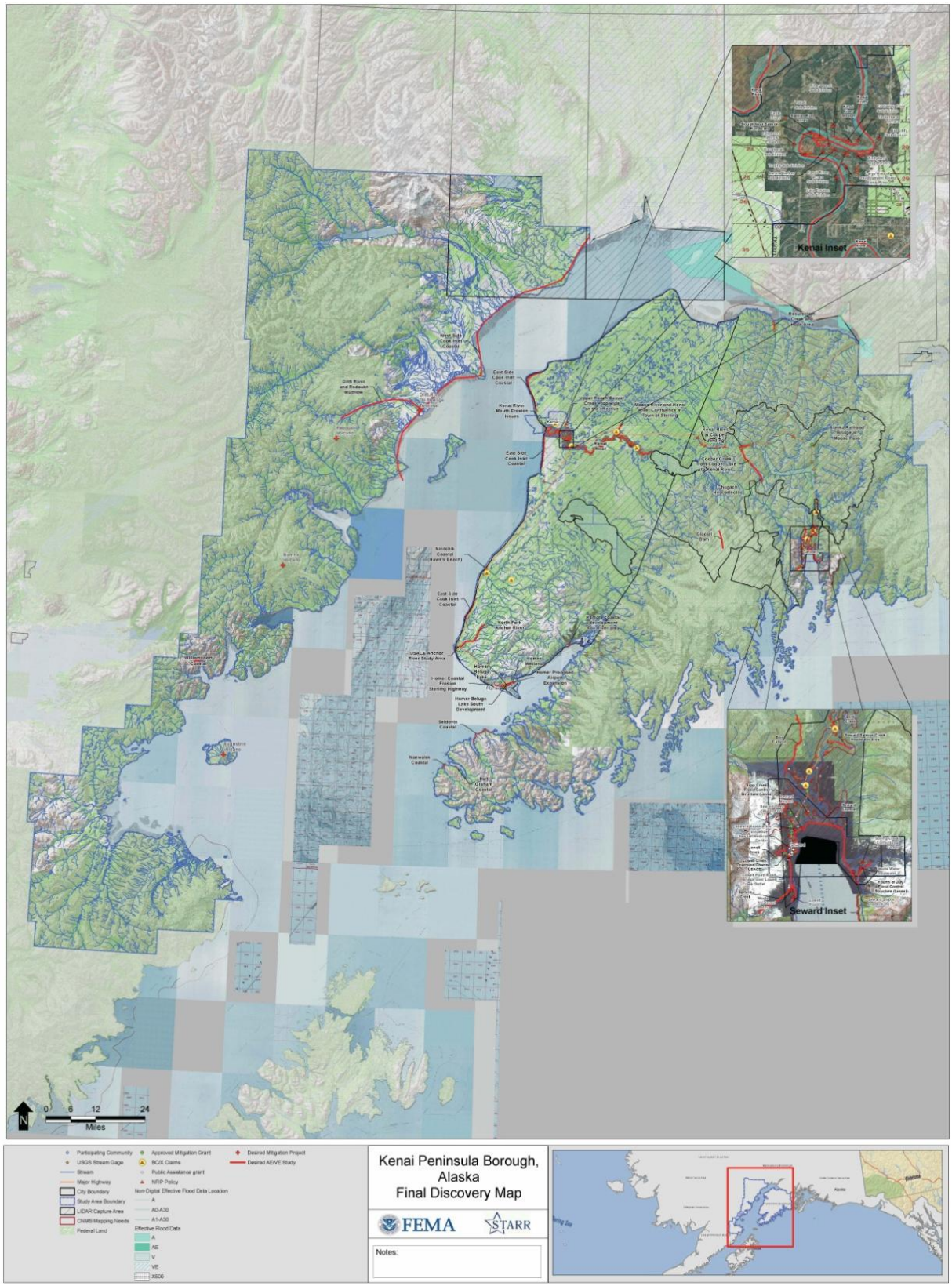
The third step was to hold a watershed-wide Discovery Meeting and facilitate discussion and data analysis of study needs, mitigation project needs, desired compliance support, and local flood risk awareness efforts. The discussion was stimulated using the Discovery Geodatabase display of relevant data. 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 Kenai Peninsula Borough 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 Kenai Peninsula Borough 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 Kenai Peninsula Borough and 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. Floodplain Studies

The effective Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) for the Kenai Peninsula Borough were last revised in 1999. The borough has both detailed and approximate riverine and coastal analyses. Seward and Homer are the only other NFIP participating communities. Homer has a separate FIS with an effective date of 9/25/2009 while Seward is included in the borough-wide FIS.

The dynamic nature of the riverine environments presents unique challenges for floodplain management. The braided morphology of the rivers is due to the massive sediment loads these rivers carry. Substantial physical changes are observed annually on many of the rivers in the borough, with the most extreme cases near Seward.

The Discovery spatial data or Final Discovery Map should be referenced to view spatial data that may be indicative of study needs. The CNMS data suggested that Seward and Homer have areas that need new flood studies. The Kenai Peninsula Borough has had seven claims within the B, C, X zones, with 20 additional claims in the Special Flood Hazard Area (SFHA). Most claims are located along the Kenai River and in the Seward area. Seward has had one claim within the B/C/X zones with three claims in the SFHA. The city of Homer has had no claims.

Kenai Peninsula Borough has had 31 Letters of Map Change (LOMC) distributed throughout the borough. These LOMC were not known to be clustered in any particular area. Seward has had two LOMCs within its city limits.

LiDAR was collected in 2007-2008 along the western low lands and eastern portions of the Kenai watershed. Between 2006-2009, multiple sets of LiDAR were collected in the Seward area. Orthophotography for the state of Alaska is limited, though some imagery has been obtained from the Kenai Peninsula Borough GIS portal.

There are several ongoing studies at the time of the Discovery Meeting. The Homer Spit is being studied by detailed methods as part of the Risk Map program. The Seward area is completing a Map Modernization project in which several creeks in and just outside the city limits are being studied. Also, as shown in Table 2, there are existing US Army Corps of Engineers (USACE) studies that should be incorporated at Cooper Landing (riverine), Ninilchik (coastal), and Anchor Point (coastal).

Between the three participating communities (Kenai Peninsula Borough, Seward, and Homer) various coastally influenced flooding areas, as well as riverine areas, were identified as needing updated floodplain studies. The Discovery Meeting and Floodplain

Administrator Interview notes should be referenced for more specific information about each mapping need.

Table 2: Kenai Peninsula Borough Mapping Needs

STUDY AREA	STUDY LENGTH (miles)	LOCATION DESCRIPTION	STUDY TYPE
Cooper Landing, Ninilchik, Anchor Point	13.6	See Final Discovery Map	USACE XDS for incorporation
Seward Coastal	12.9	Within Corporate Limits	VE Study
Kalifornsky Coastal	9	Near Nikiski on Cooke Inlet	VE Study
Nikiski Coastal	12.7	Near Nikiski on Cooke Inlet	VE Study
Homer Coastal	0.8	Shoreline on Western Coastline within the Corporate Limits	VE Study
Happy Valley Coastal	5.9	Happy Valley on Cook Inlet	VE Study
Hope Coastal	2.9	Along Hope Highway	VE Study
Seldovia Coastal	13	Seldovia Bay through Seldovia Village	VE Study
Port Graham Coastal	1.9	Port Graham	VE Study
English Bay Coastal	3.1	English Bay	VE Study
West Cook Inlet	101.7	West Borough Coastline along Non-Federal Lands	VE Study
Williamsport Coastal	6.9	West Borough Coastline, South	VE Study
Resurrection Creek	2.6	Extending from the coast upstream at Hope	Zone A Study
Kenai River/ Borough	50.7	Extending from the coast to Skilak Lake	AE Study
Moose Pass	2.7	Upper Trail Lake near Grant Lake Trail	AE Study
North Fork Anchor River	17.1	From the coast extending upstream	AE Study
Beluga Lake	2.5	Shoreline of Beluga Lake	AE Study
Drift River	23.4	Extending from the to the north of Redoubt Volcano	Zone A Study
Box Canyon	3.6	Extending from Resurrection River to the north of the corporate limits	Zone A Study
Lost Creek	0.8	From the confluence with Goose Creek	AE Study
Cooper Creek	4.7	Extending from Cooper Lake to the confluence of the Kenai River	Zone A Study
Beaver Creek	3	Extending from the confluence of the Kenai River to the limits of Kenai	AE Study
Spruce Creek	2.3	Extending from the mouth upstream	Zone A Study

ii. Mitigation Projects

The Alaska State Hazard Mitigation Plan is in good standing and expires in 2013. The Kenai Peninsula Borough has developed a hazard mitigation plan that includes all the NFIP participating communities, as well as Kenai and Soldotna, which are currently sanctioned. FEMA records show the plan to be expired in August of 2010. The borough indicated that they suspected that the updated plan was being reviewed by FEMA. The cities of Seward and Homer have adopted this plan, and both have included their localized plans as appendices.

In addition to the mitigation projects identified in the plans, other potential mitigation projects were discussed during Discovery:

> Bluff Erosion: Along the coast near the mouth of the Kenai River, coastal bluff erosion is a concern that the borough would like to see addressed.
>
> Lowell Creek Tunnel: The city of Seward requests a Level 2 Hazus analysis for a flood scenario if the tunnel fails.

Other projects mentioned during interview that were not discussed at the Discovery Meeting include:

> Homer Spit Properties: The city of Homer indicated several non-developed private properties along the spit that may be acquired to reduce future flood risk, as these properties are in the VE zone.
>
> Seward Sedimentation: The city of Seward has indicated a need for a debris removal program for the Resurrection River, Japp Creek, and Sawmill Creek.
>
> Channel Migration: Several rivers and streams around Seward have shown substantial channel migration. Channel migration studies are desired in the Seward area.

iii. Compliance

Data collected from CIS indicated that the Kenai Peninsula Borough and the city of Homer did not issue 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 the NFIP. The city of Seward issued one variance. The most recent Community Assistance Visit in the area was a 2010 visit with Seward. Homer was visited in 2008, and the last borough contact was in 2003. No specific requests for training or compliance support were discussed.

iv. Communications

During the interviews, the community 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 programs. Currently,

Kenai Peninsula Borough and Seward participate in the Community Rating System (CRS) program. The city of Homer may benefit from CRS participation but does not currently participate in the program. All three communities work with the residents to communicate flood information. The borough is very proactive about outreach and education. They hold workshops to educate residents about flood risk and hazard reduction. The Seward/Bear Creek Flood Service Area holds similar workshops for the east side of the borough. An important component of their outreach is to emphasize prevention of flood damage by mitigation. They conduct personal visits to properties being developed to educate the residents on how to build defensibly.

The Kenai Peninsula Borough is comprised of approximately 49,700 residents, with 3,950 in Homer, and 2,830 in Seward (U.S. Census, 2000). The median age in the Borough is 36 years old, with approximately 7% of the population over 65 years old. In the cities of Homer and Seward, the median age is closer to 38, and in Homer, approximately 10% of residents are over the age of 65. About 2% of residents in the borough are non-English speakers, while Seward averages about 4%. About 8% of the population in the borough can be classified as Native American, while Seward has closer to 17% Native residents. An average of 89% of the population holds a high school diploma while 20% have a college degree. In Homer, about 29% of residents had a college degree, while in Seward the number was closer to 16%.

As of 2000, approximately 55% of residents over age 16 that desired employment were working, with a median annual income of approximately $46,397. A majority of the residents within the borough work in the following industries: educational, health, and social services; retail trade; and arts, entertainment, recreation, accommodation and food services. The demographics data do not indicate that there may be a need for special outreach strategies for the Kenai Peninsula Borough.

The local officials were all interested in learning more about how to provide flood risk information to residents. The borough expressed an interest in more communication with FEMA about ongoing studies and mapping needs.

IV. Close

Local officials in the communities were interested in the Discovery process and Risk MAP, and are 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. The local officials in the City of Kenai Peninsula Borough would benefit from the implementation of Risk MAP projects, and would welcome more FEMA involvement in their floodplain management programs.

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

Community Interviews

- Fact Sheet
- ***Interview Reference Maps***
- Interview Notes
- Locally-Provided Documents

Discovery Meeting

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

Report

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