

**City and Borough of Juneau (CBJ), AK Risk MAP:  
Community Coordination Officers (CCO) Preliminary Flood Map Meeting  
January 9, 2018**

Location: Marine View Building  
4th floor Large Conference room  
230 South Franklin Street  
Juneau, AK 99801

Attendees: See attached sign-in sheet (included as Appendix B)

Meeting Minutes:

- Introductions
  - Ted Perkins opened the meeting by introducing himself, followed by introductions around the room.
- Meeting Presentation (included as Appendix A)
  - Brief Background & Presentation:
    - Why are we here?
    - National Flood Insurance Program
    - Map Modernization Program
    - Flood Study History (including Discovery)
  - STARR II (Joshua Crowley) presented the following topics:
    - Flood Study Methodology and Results
      - Coastal Re-mapping; and
      - New/Revised Riverine Studies
    - Notable areas of Special Flood Hazard Area (SFHA) changes
  - Cynthia McCoy discussed non-regulatory products being produced as part of this study. The following non-regulatory datasets are draft as this stage of the project:
    - Changes Since Last FIRM
    - Flood Depth Grids (riverine)
    - Water Surface Elevation Grids (riverine)
  - Additional non-regulatory tasks scoped as part of this study include:
    - Multi-hazard Risk Report, including:
      - HAZUS-MH Risk Assessments (multiple scenario flood and earthquake events, estimated potential losses, population, debris, and essential facility impacts)
        - Flood
        - Earthquake
        - Tsunami
    - Non-Regulatory Deliverables
    - Public Outreach Materials
      - Can be customized to meet CBJ's needs.

- Ted and Karen Wood-McGuiness presented the Adoption Process.
  - The CBJ study is currently in a stage called: Post Preliminary Processing (PPP). The timeline of events for PPP is:

Preliminary maps issued	August 25, 2017
CCO Meeting	January 9, 2018
Public Meeting(s)	March 2018*
Appeal Period	April/May 2018*
End of Appeal Period	July/August 2018*
FEMA issues “Letter of Final Determination (LFD)”	Winter 2018/2019*
Effective Date	Summer 2019*

\* *Proposed Dates are Subject to Change*

- Outreach –Notifications and Open House
- Appeals & Comments – Ted explained what constitutes an “appeal” versus a “comment”. All comments/appeals should be bundled and submitted to FEMA via the Community (CBJ). Bundled appeals/comments should be submitted to:
  - FEMA Region X Service Center  
 20700 44thAve. W., Suite 110  
 Lynnwood, WA 98036
- Letters of Map Change (LOMC) (Way to Appeal at Any Time)
  - Letter of Map Amendment (LOMA) - for property owners who believe a property was incorrectly included in a floodplain, primarily through showing that the lowest elevation of the structure is above the 1% flood elevation.
  - Letter of Map Revision (LOMR) – for communities to submit better technical information to change a floodplain or to reflect physical changes made to the floodplain.
  - (LOMA) Hotline -1-877-FEMA-MAP
- Leanne Ronne discussed options for the public meeting(s) to be held in CBJ.
  - Public Meeting – Information Tables:
    1. Flood Insurance
      - When is flood insurance required?
      - What is the flood insurance rate for a structure in zone (AE, A, AO, AH, V, VE, Shaded X, Unshaded X)?
      - What are my best options to get the lowest rate?
    2. Flood Study/Engineering
      - How does one determine the 1% flood?
      - What areas were updated?
      - What information was used (topography, models, assumptions)?
      - What is the process to appeal the information and/or provide better information?

3. Property Identification & Digital Mapping
    - Determining if one is in a Flood Zone
    - If yes, what type of flood zone is one in (AE, A, AO, AH, V, VE, Shaded X, Unshaded X)
    - Ability to add layers to help better locate a property (orthophotos, parcel data)
    - Print a map of your property and the flood zone
    - Where one should go next for more information (Insurance, Floodplain Regulations)
  4. State Table
    - State Flood Mapping Priorities
    - Risk Reducing Strategies
    - State Floodplain Regulations
  5. Community Table
    - City Floodplain Regulations
    - Emergency Management Capabilities
    - Locally Available Hazard Mitigation Plans
  6. Floodplain Regulations
    - What are the building requirements/restrictions for the zone one is in (AE, A, AO, AH, V, VE, Shaded X, Unshaded X)?
    - What are the building requirements/restrictions for a floodway?
- Questions/Comments?
  - Project Contacts

Next Meeting: CBJ Public Meeting, (tentatively in March 2018), actual dates, times & locations to be determined.

Adjourn: 4:00pm

---End of Minutes---

## APPENDIX A – MEETING PRESENTATION

**RiskMAP**  
Increasing Resilience Together

**Risk MAP Community Coordination (CCO) Meeting**

City and Borough of Juneau  
January 9, 2018

**Meeting Purpose & Agenda**

- Study Background and Scope
- State of Alaska's Role
- RiskMAP Process
- Flood Study Methodologies
- Risk Assessments
- Appeal/Comment Process
- Map Adoption Process
- Public Meeting options

**Alaska's Mapping Priorities**

FEMA asks Cooperating Technical Partner States to identify priorities for future mapping studies in the State Mapping Business Plan, which is updated each year.

Some of the criteria determining Alaska's priorities include:

- Local Hazard Mitigation Plan
- Participation in the NFIP Community Rating System
- Number of Disaster Declarations
- In-House GIS Capabilities
- Planned Future Development

**How Are Communities Selected For Mapping Studies?**

City and Borough of Juneau was selected for a new Risk MAP study because it met most of these criteria, and the Borough requested a new Flood Insurance Study and Flood Insurance Rate Maps

**Rank**

1-10,000	14-20,000	69-80,000	83-100,000
11-13,000	21-25,000	81-90,000	101-110,000
14-17,000	26-30,000	91-100,000	111-120,000
18-20,000	31-35,000	101-110,000	121-130,000
21-25,000	36-40,000	111-120,000	131-140,000
26-30,000	41-45,000	121-130,000	141-150,000
31-35,000	46-50,000	131-140,000	151-160,000
36-40,000	51-55,000	141-150,000	161-170,000
41-45,000	56-60,000	151-160,000	171-180,000
46-50,000	61-65,000	161-170,000	181-190,000
51-55,000	66-70,000	171-180,000	191-200,000

**Alaska Risk MAP Website**

<https://www.commerce.alaska.gov/web/dcr/PlanningLandManagement/RiskMAP.aspx>

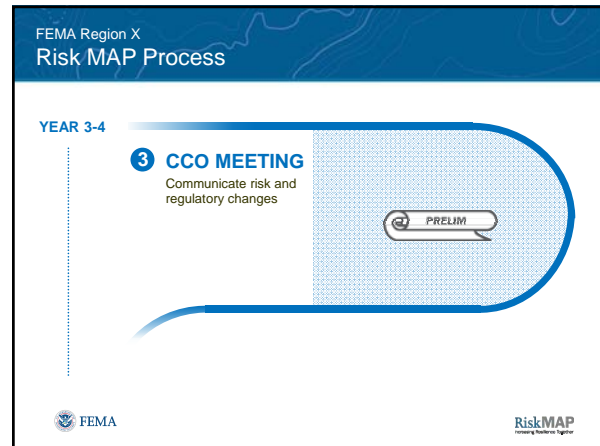
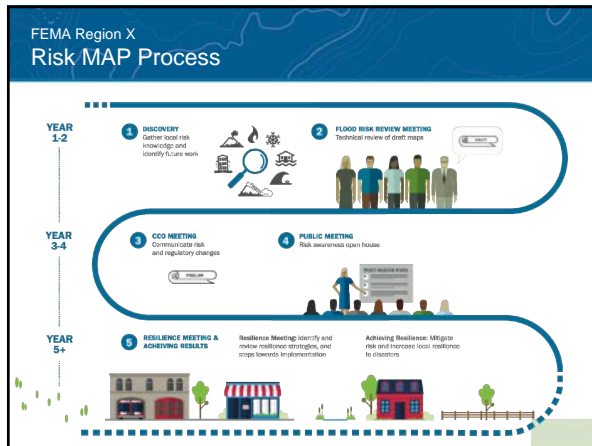
Information on all the Risk MAP activities in Alaska:

- Community Risk MAP Studies
- Documents on the Risk MAP Program
- Links to other Risk MAP-related webpages
- Information on increasing community resilience

**Community Risk MAP Study Webpage**

<https://www.commerce.alaska.gov/web/dcr/PlanningLandManagement/RiskMAP/CityandBoroughofJuneauRiskMAPStudy.aspx>

A one-stop shop for everything to do with your community Risk MAP study



### Regulatory & Risk Assessment RiskMAP Products

#### Regulatory Products

- Flood Insurance Study (FIS)**
- Flood Insurance Rate Maps (FIRM)**

#### Risk Assessment Products

- Changes Since Last FIRM**
- Flood Depth Grids**
- HAZUS Risk Assessment**
- Risk Report**
- Risk Database**

### City and Borough of Juneau Flood Mapping Timeline

**For DFIRM and Coastal Study:**

- Scoping Meeting – April 27, 2005
- Preliminary Map Release – September 2010
- Community Coordination Meeting (CCO) – December 2, 2010
- Public Meeting - December 2, 2010
- Appeal Period Start – March 27, 2011
- Appeal Period End – June 25, 2011
- Letter of Final Determination – February 19, 2013
- Effective Study – August 19, 2013

**For Study Update Effort:**

- Discovery Meetings – September 26, 2013
- Draft Maps Provided – May 18, 2016
- Flood Risk Review Meeting – August 30, 2016
- Preliminary Map Release – August 25, 2017
- Community Coordination Meeting (CCO) – January 9, 2018

### Overall Project Summary - Coastal

- Auke Bay (Pt. Lena to Mendenhall Peninsula) and Douglass Harbor (to Juneau-Douglass Bridge)**
  - Determine if effective SFHA's would change when mapped on 2013 LiDAR data
  - Areas considered included
  - Compare topography from effective study with LiDAR obtained by CBJ in 2013
  - Evaluate slope discrepancies and where they exist perform new transect analysis
  - Re-map SFHA's using 2013 LiDAR data
- Tee Harbor**
  - Determine whether sufficient data exists to analyze three new transects in Tee Harbor
  - If so, perform analysis to determine BFEs and map SFHAs



### Juneau Areas of Concern

- Auke Bay (Pt. Lena to Mendenhall Peninsula)**
  - 15 miles of shoreline
  - 296 coastal transects
- Douglas Harbor (to Juneau-Douglass Bridge)**
  - 4 miles of shoreline
  - 46 coastal transects
- Tee Harbor**
  - 3 miles of shoreline
  - Approximate V in effective mapping



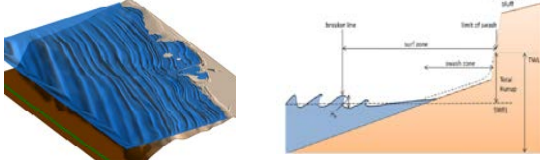
### Topographic Data Sources

- 2009 NHC Study**
  - LiDAR** – City and Borough of Juneau provided all available LiDAR data sets that bound the Gastineau Channel study area
  - SRTM** – Areas beyond the LiDAR coverage were supplemented with topography data from the Shuttle Radar Topography Mission
- 2016 Coastal Redelineation**
  - LiDAR** - Data for Auke Bay and Douglas Harbor was provided to STARR by the CBJ GIS Division
  - CBJ contracted Watershed Sciences, Inc. to collect LiDAR and digital imagery in the spring of 2013
  - Data acquired in May-June 2013






### Coastal Flooding Overview

Regional Variation → Local Variation



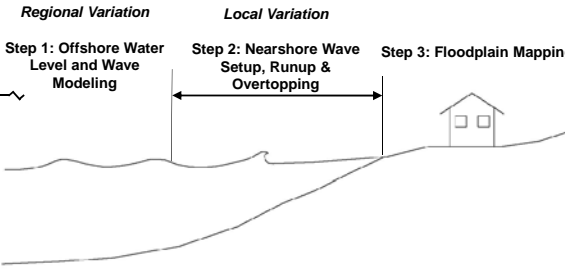


Tides, Storm Surge, El Niño → Wave Setup, Wave Runup

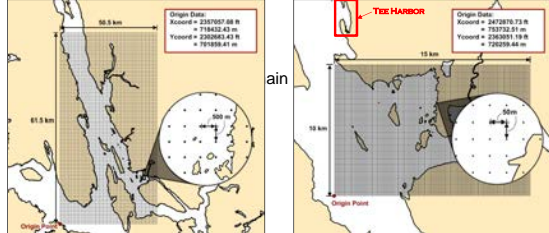
### Modeling Process

Regional Variation      Local Variation



Step 1: Offshore Water Level and Wave Modeling      Step 2: Nearshore Wave Setup, Runup & Overtopping      Step 3: Floodplain Mapping


### Step 1 – Wave Modeling Performed by NHC



- Large SWAN Grid
- Outputs not saved
- Tee Harbor new study was not possible since no offshore wave modeling was available.



### Step 2: Wave Setup and Runup (Transect Analysis)




Wave Height  
Wave Period  
SWEL  
Profile Slope

→




Wave Setup  
Wave Runup

### Step 2: Wave Setup and Runup (Transect Analysis)



Mild Slopes (Beaches)

### Step 2: Wave Setup and Runup (Transect Analysis)

Waves, SWL, Setup, Runup, Total Water Level

Shoretype 2, Shoretype 3

Steep Slope (Bluffs/Bulkheads)

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### Slope Comparison Analysis

Profile (TRANS ID)	2009 NHC/DEM Slope (1:20)	2010 LIDAR DEM Slope	Slope Difference (2010 - 2009)	Slope Difference Rank
S-001	2.06	2.28	-0.16	13
S-011	7.40	7.95	-0.55	35
S-021	7.65	7.95	-0.30	31
S-031	6.79	7.95	-1.16	5
S-041	5.05	6.81	-1.76	30
S-051	7.05	7.13	-0.08	24
S-061	6.77	7.28	-0.51	37
S-071	8.93	9.00	-0.07	23
S-081	1.26	1.28	-0.02	32
S-091	6.59	6.97	-0.38	33
S-101	6.98	7.23	-0.25	28
S-111	7.83	8.43	-0.60	36
S-121	2.94	2.46	0.48	19
S-131	34.28	28.12	-6.16	1
S-141	7.40	1.93	-5.47	2
S-151	1.30	1.55	-0.25	14
S-161	1.28	0.23	-1.05	6
S-171	3.89	4.68	-0.79	40
S-181	3.00	2.90	0.10	39
S-191	8.24	8.00	0.24	21
S-201	9.22	10.94	-1.72	38
S-211	2.80	2.27	-0.53	9
S-221	5.27	5.20	-0.07	16
S-231	2.56	2.90	-0.34	31
S-241	3.18	3.10	-0.08	4
S-251	1.95	2.46	-0.49	25
S-261	6.20	6.10	0.11	26
S-271	2.25	2.00	0.25	34
S-281	6.80	7.10	-0.30	28
S-291	8.18	8.10	0.08	11
S-301	3.30	3.28	-0.02	17
S-311	4.08	4.00	-0.08	11
S-321	2.73	2.44	-0.29	12
S-331	3.18	3.88	-0.70	38
S-341	4.41	5.14	-0.73	39
S-351	3.86	3.88	-0.02	22
S-361	6.43	6.43	0.00	19
S-371	4.60	4.90	-0.30	27
S-381	16.04	17.36	-1.32	42
S-391	6.83	7.42	-0.59	27
S-401	10.87	10.25	-0.71	7

- Compared topographic data sets to assess slope discrepancies at shoreline
- Sampled 10% of transects and compared shoreline profiles
- Significant differences in slope identified in fill areas only
- Re-analysis at the shoreline was not required
- Re-delineation of effective zones based on LIDAR topography

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### Step 3: General Mapping

ZONE	BFE
AE if TWL < SWL + 3'	TWL Rounded to Nearest Foot
VE if TWL ≥ SWL + 3'	

Delineation	Zone Breaks
Follow Contour of TWL	Break along the Coast Where Shoreline Characteristics

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### Step 3: Special Mapping Cases

- 2009 NHC Study Mapping
  - VE25 throughout most of the sheltered Auke Cove shoreline
- 2015 Redelineation Mapping
  - AE25 throughout sheltered portion of Auke Cove shoreline

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### Step 3: Special Mapping Cases Fill Areas

- Decision was made to maintain effective coastal flood hazard zones across fill areas
  - Significant slope discrepancies only occurred in areas with construction of revetments that were backfilled over submerged lands

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### FEMA Coastal Outreach Website

[www.fema.gov/coastal-flood-risks](http://www.fema.gov/coastal-flood-risks)

Coastal Flood Risks: Achieving Resilience Together

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## Riverine Scope of Work

**Detailed Studies**


- Duck Creek (3.4 miles)
- East Fork Duck Creek (1.3 miles)
- Jordan Creek (3.1 miles)
- Lemon Creek (1.6 miles)
- Unnamed Tributary to Duck Creek (0.3 miles)

**Approximate Studies**

- Auke Creek (1.3 miles)
- Gold Creek (2.0 miles)

**Coastal Studies (Re-mapped)**


- Auke Bay (15 miles)
- Douglas Harbor (4 miles)
- Switzer Creek (0.7 miles)



- Update to 22 map panels

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## Riverine Studies




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## Hydrologic Methods

Method	Description	Streams
Regression	U.S. Geological Survey (USGS) Water-Resources Investigations Report 03-4188	East Fork Duck Creek Lemon Creek Unnamed Tributary to Duck Creek
Gage Analysis	Statistical analysis of local gages ➢ Bulletin 17B ➢ Weight with regression	Auke Creek Duck Creek East Fork Duck Creek Gold Creek Jordan Creek Unnamed Tributary to Duck Creek

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## Hydrologic Scope



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## Hydraulic Methods

Method	Description
Approximate (Zone A)	<ul style="list-style-type: none"> <li>HEC-RAS model (simplified)</li> <li>Roughness is generalized</li> <li>Based on LIDAR Topography</li> <li>No survey</li> <li>Structures are not modeled</li> </ul>
Detailed (Zone AE)	<ul style="list-style-type: none"> <li>Steady State HEC-RAS model</li> <li>Roughness is examined closely (calibrated to gages)</li> <li>Based on LIDAR Topography</li> <li>Channel cross sections surveyed</li> <li>Structures are surveyed</li> <li>Floodway Analysis</li> </ul>

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## Hydraulic Scope



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### Level of Study

#### ZONE A: Approximate Study

- Updated terrain.
- Regression equations from USGS and USGS gage frequency analysis used to determine flood discharge.
- HEC-RAS modeling used for hydraulics.
- Cross-section values derived from terrain. No Field Survey.
- Provides an approximate delineation for the 1% annual chance (100 year-flood) event.

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### Riverine Studies approximate

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### Level of Study

#### ZONE AE: Detailed Study

- Updated terrain. Structures & XS are field surveyed.
- Hydrology from regression analysis and gage frequency analysis.
- HEC-RAS modeling used for hydraulics
- Updated Floodway Data Table and Flood Profiles
- Provides:
  - Cross Sections (both lettered and unlettered)
  - Floodway
  - 1% annual chance (100yr) floodplain
  - 0.2% annual chance (500yr) floodplain
  - Also modeled 10%, 4%, 2%, and 1%+

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### Riverine Studies - Detailed

Mapping	AE	AE	VE	AE/AO	V	A	Shaded	D
Effective SFHAs	AE1	AE2	VE	AE/AO	V	A	Shaded	D
New Study SFHAs	AE1	AE2	VE	AE/AO	V	A	Shaded	D

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### Floodway Schematic

**FLOODWAY + FLOODWAY FRINGE = 100 YEAR FLOODPLAIN**  
**SURCHARGE NOT TO EXCEED 1.0 FEET**

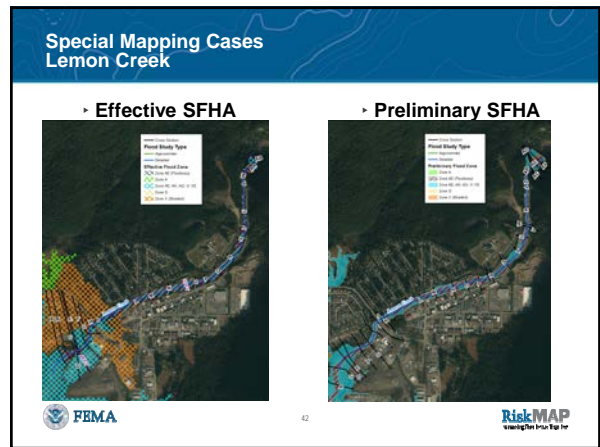
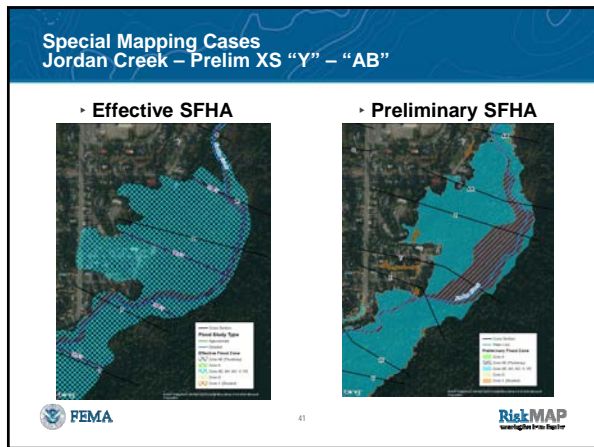
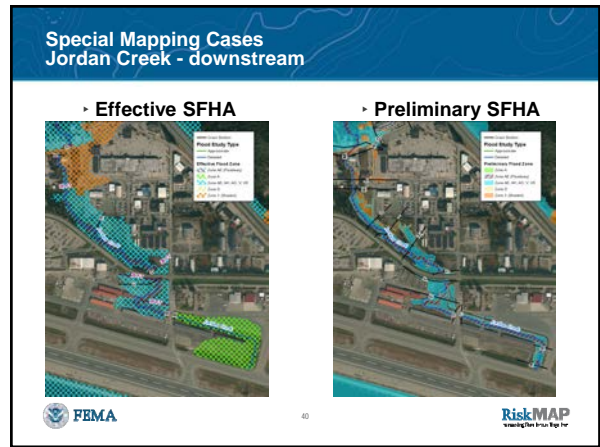
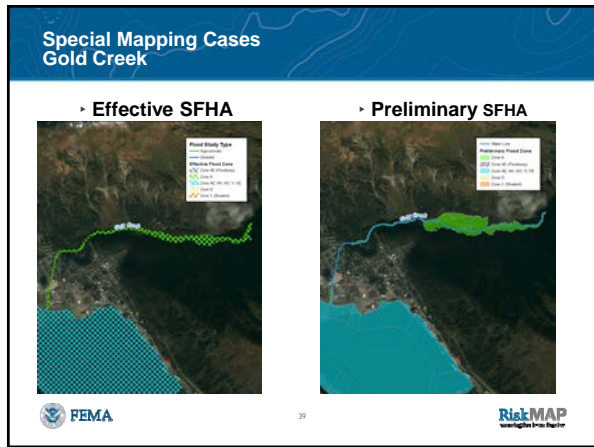
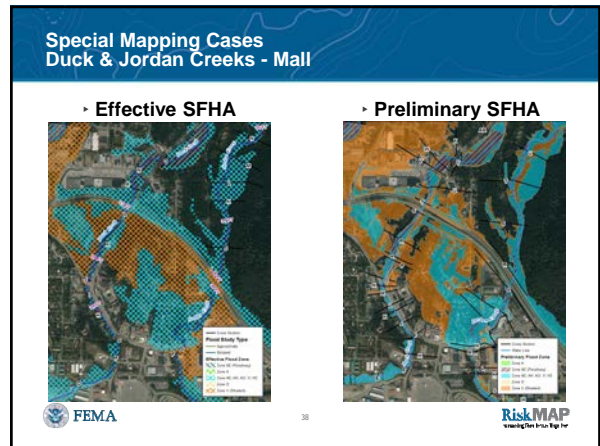
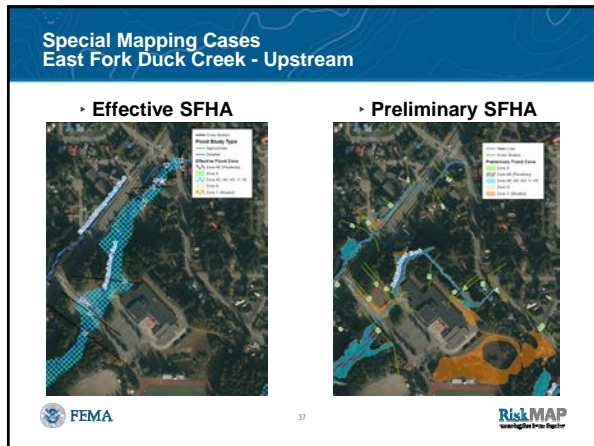
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### Special Mapping Cases Duck Creek - downstream

#### Effective SFHA

#### Preliminary SFHA

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### Special Mapping Cases Unnamed Tributary to Duck Creek

► **Effective SFHA**

► **Preliminary SFHA**

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### Preliminary Map Labeling

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### RiskMAP Products

- **Changes Since Last FIRM**
- **Depth Grids (Riverine)**
- **Multi Hazard Risk Assessment (Tsunami, Flood, Earthquake)**
- **Risk Report**
- **Risk Database**

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### Changes Since Last FIRM

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### Flood Depth Grids

- **Flood Depth Grids**
  - Riverine Scenarios: 10%, 4%, 2%, 1%, & 0.2% Annual Chance Floods

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### Hazus-MH Risk Assessments

- Multiple Scenario flood, tsunami and earthquake events
- Estimated Potential Losses
- Population, Debris, and Essential Facility Impacts

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### Building Specific Results

Address	Building Value	Occupancy Type	Building Loss	Loss Ratio
2802 RIVER RD E	\$7,100	Mobile Home	\$5,500	78%
2623 31ST AV E	\$174,800	Mobile Home	\$132,000	75%
3707 GAY RD E	\$15,000	Mobile Home	\$10,000	68%
3107 36TH AVCT E	\$10,300	Mobile Home	\$6,800	66%
2411 28TH AV E	\$52,400	Mobile Home	\$34,000	65%
4109 GAY DR E	\$6,600	Mobile Home	\$4,200	64%
3705 GAY RD E	\$23,100	Mobile Home	\$13,900	61%
2518 29TH AV E	\$18,200	Mobile Home	\$10,400	58%
XXX 28TH STCT E	\$1,430,6000	Mobile Home	\$819,300	57%
4034 RIVER RD	\$363,200	Mobile Home	\$198,400	55%
3103 36TH AVCT E	\$3,500	Mobile Home	\$1,800	52%

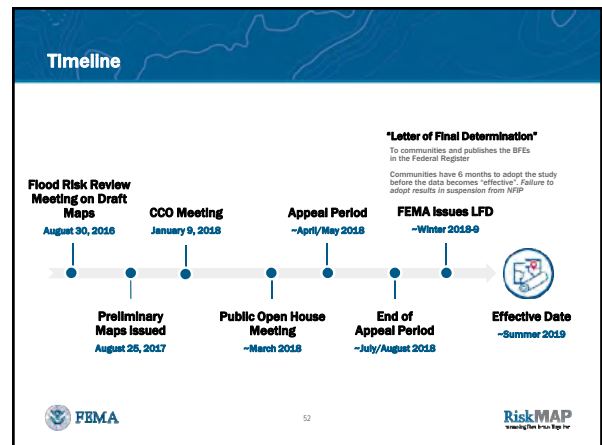
### Multi Hazard Outreach Materials and Training

**Trainings Provided for Local Staff**

- NFIP Training and Technical Support
- Risk Assessment Training and Technical Support
- Hazard Mitigation Planning Support

**Multi-Hazard Outreach Materials**

### City and Borough of Juneau Flood Map Adoption Process



### Outreach - Notifications and Open House

- Fliers/Mailing
- Press Releases
- Property Identification
- Mapping Assistance
- Comment Sheets
- Table Identification
- Attendance Collection
- Open House Recap


### Appeals & Comments

- Submitted by community officials
- Community bundles all the comments and forwards them to Region 10 Support Center

**FEMA Region X Service Center**  
 20700 44<sup>th</sup> Ave. W., Suite 110  
 Lynnwood, WA 98036

## Input & Comments

- Private landowners submit to their community officials
- Community bundles all the comments and forwards them to FEMA Region 10 Service Center
- Forms will be available at the Open House



Flood Risk Open House  
Property Owner Information & Map Comments


**Public Comments:**

- Name:
- Address:
- City:
- State:
- Zip:
- Phone:
- Email:
- How did you learn about the Open House?
- How did you get to the Open House?
- How did you feel about the Open House?
- What did you like about the Open House?
- What did you not like about the Open House?
- What do you think the community should do to improve the flood risk?
- What do you think the community should do to improve the flood risk?
- What do you think the community should do to improve the flood risk?

**Submit comments for your community:** \_\_\_\_\_

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## Letters of Map Change (LOMC)



**Letter Of Map Amendment (LOMA)** – for property owners who believe a property was incorrectly included in a floodplain, primarily through showing that the lowest elevation of the structure is above the 1% flood elevation.

**Letter Of Map Revision (LOMR)** – for communities to submit better technical information to change a floodplain or to reflect physical changes made to the floodplain.

**(LOMA) Hotline – 1-877-FEMA-MAP**

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## Information Tables

<p><b>Property ID &amp; Digital Mapping</b></p> <p>Receive a printed map of your property and understand the flood zone</p>	<p><b>Flood Study / Engineering</b></p> <p>Understand the methodology and technical specifications of the maps</p>	<p><b>Flood Insurance</b></p> <p>Learn about your insurance policy options and rates</p>
<p><b>State Table</b></p> <p>Gain insights into state floodplain mapping priorities</p>	<p><b>Community Table</b></p> <p>Ask about city/county floodplain regulations and hazard plans</p>	<p><b>Floodplain Regulations</b></p> <p>Gather information on specific building requirements / restrictions</p>

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## Questions & Comments

**FEMA:**

Flood Study Engineer:	<b>Ted Perkins</b>	(425) 487-4684
Risk Analyst/GIS Specialist:	<b>Cynthia McCoy</b>	(425) 487-2241
Floodplain Management Spec.	<b>Karen Wood-McGuiness</b>	(425) 487-4675
Mitigation Planner:	<b>Amanda Siok</b>	(425) 487-4626

**State of Alaska Contacts:**

State RiskMAP Coordinator	<b>Sally Cox</b>	(907) 269-4588
State NFIP Coordinator	<b>Jimmy Smith</b>	(907) 269-4132
STARR II Project Manager	<b>Emily Whitehead</b>	(513) 842-8226
Communications and Outreach	<b>Leanne Rone</b>	(206) 288-6011

Flood Insurance Information [www.floodsmart.gov](http://www.floodsmart.gov)

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## APPENDIX B – MEETING SIGN-IN SHEET

# CITY AND BOROUGH OF JUNEAU, AK

## CCO: SIGN-IN

NAME	TITLE	EMAIL	PHONE
Teri Camery	Senior Planner CBJ	teri.camery@juneau.org	907-586-0755
Tom Mattice	Emergency Programs Manager	Tom.Mattice@juneau.org	907-209-9207
Kim Stuart	Planning Program Mgr	Kim.Stuart@alaska.gov	907-428-7020
RICHARD HILDRETH	EMERGENCY MANAGEMENT III	RICHARD.HILDRETH@ALASKA.GOV	907 428-7047
RICK DEMBROSKI	EMERGENCY MANAGEMENT II	RICK.DEMBROSKI@ALASKA.GOV	907-428-7015
Quinn Tracy	Cartographer	quinn.tracy@juneau.org	907-586-0762
JOSHA CROWLEY	IS/SC LEAD, STARR II	joshua.crowley@atkinsglobal.com	425.329.3679
Ted Perkins	Regional Engineer	dwight.perkins@sema.dhs.gov	425-487-4684
Rob Stead	Community Development Director	rob.stead@juneau.org	907.586.0757
Greg Chaney	CB/Lands Manager	greg.chaney@juneau.org	907 586 0205
Sally Russell Cox	State Risk MAP Coord,	sally.cox@alaska.gov	907 269-4586

# CITY AND BOROUGH OF JUNEAU, AK

## CCO: SIGN-IN

NAME	TITLE	EMAIL	PHONE
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