# Chapter Three: Alaska's NFIP-Participating Local Governments

Floods have been, and continue to be, a destructive natural hazard in terms of economic loss to Alaska's local governments and the residents that live in these communities. Flooding is of great concern in Alaska because there are more than 3,000 rivers, over 5% of Alaska's land area is covered with glaciers, and more than 40,000 miles of coastline provide a multitude of opportunities for flooding. Unfortunately, residents of many flood-prone Alaskan communities do not have flood insurance even though they may live near water. One hundred-nine or 66 %[1] of Alaska's 164 incorporated communities do not participate in the NFIP.

Slightly more than one-third (34%) of Alaska's 164 incorporated municipalities participate in the NFIP. In addition to the 33 NFIP-participating cities and boroughs, 24 cities located within the jurisdictional boundaries of participating boroughs enjoy the benefits of NFIP participation. Two municipalities (2 %) participate in the NFIP (Soldotna, and Wrangell) but are considered "suspended" and thus are not eligible for federal flood insurance. The City of Delta Junction made the decision to withdraw from the NFIP in 2015.

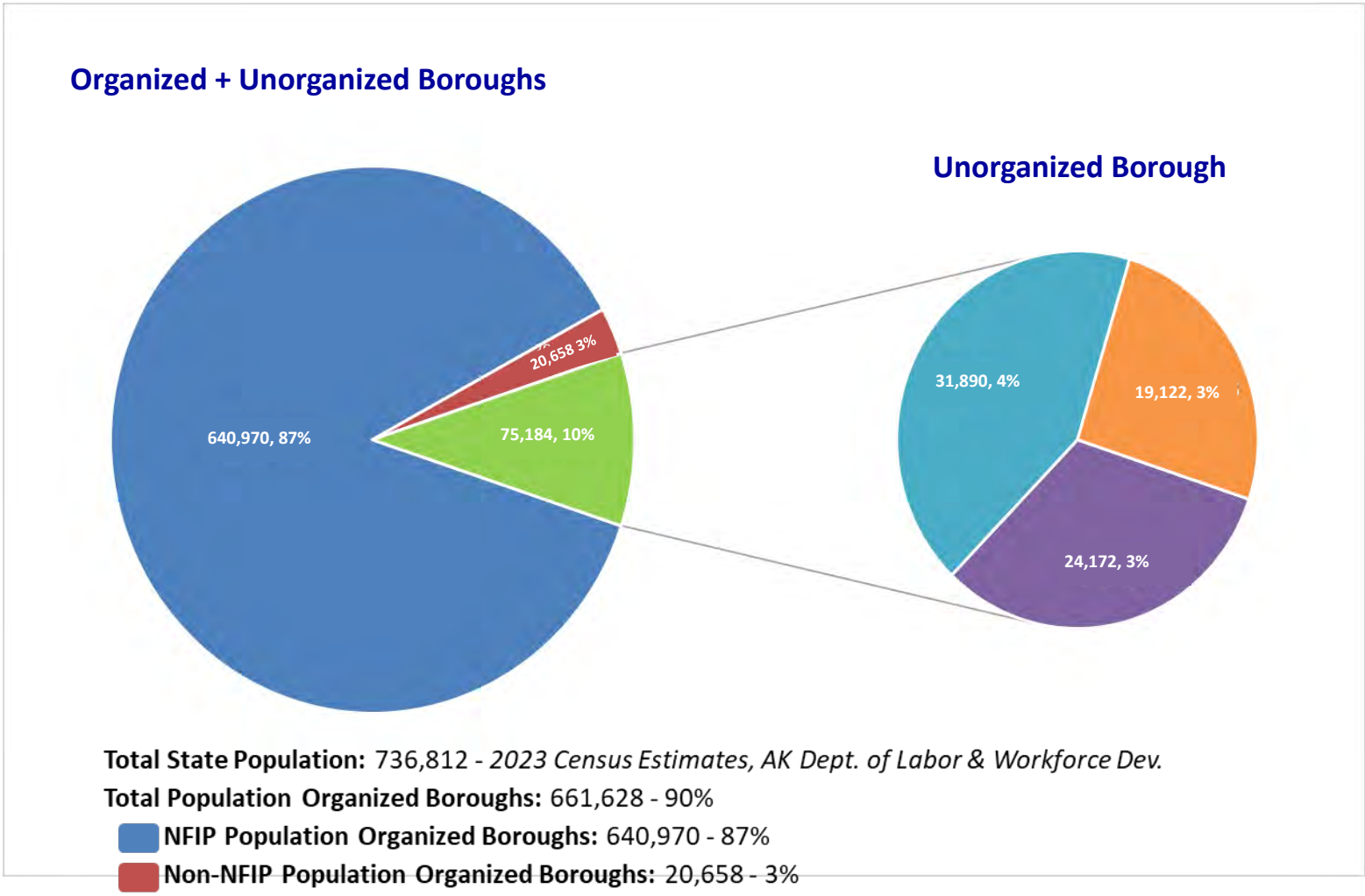
It is noteworthy that the majority of Alaska's population resides within the 33 cities and boroughs that participate in the NFIP. As Figure 17 illustrates on the next page, 90 percent of Alaska's population participates in the NFIP. Eighty-seven percent of Alaska's population residing in organized boroughs participates in the program, and three percent of the state population residing in cities in the unorganized borough participates in the NFIP.[2]

When Alaska's Unorganized Borough is considered alone, however, the figures tell a slightly different story. Only 32% of the state population living in Alaska's Unorganized Borough participate in the NFIP. Forty-three percent of the population living in cities in the Unorganized Borough do not participate in the NFIP and 25% of the population living in unincorporated villages do not. It is of concern that most of Alaska's federally-declared disasters involving flood or severe storm events have occurred in the Unorganized Borough within the Bethel, Kusilvak and Yukon-Koyukuk Census Areas. (See Figure 33, page 99.)

Figure 18, page 31, provides a map identifying the locations of the 13 boroughs and 19 cities that participate in the NFIP. Table 1, page 33, provides a listing of the boroughs and cities participating in the NFIP.

[1] This includes the 3 communities, the Cities of Kenai, Soldotna, and Wrangell, that are suspended from the NFIP, and 1 community, the City of Delta Junction, that withdrew from the NFIP.
[2] All Alaska population data from the 2020 Census, US Census Bureau.

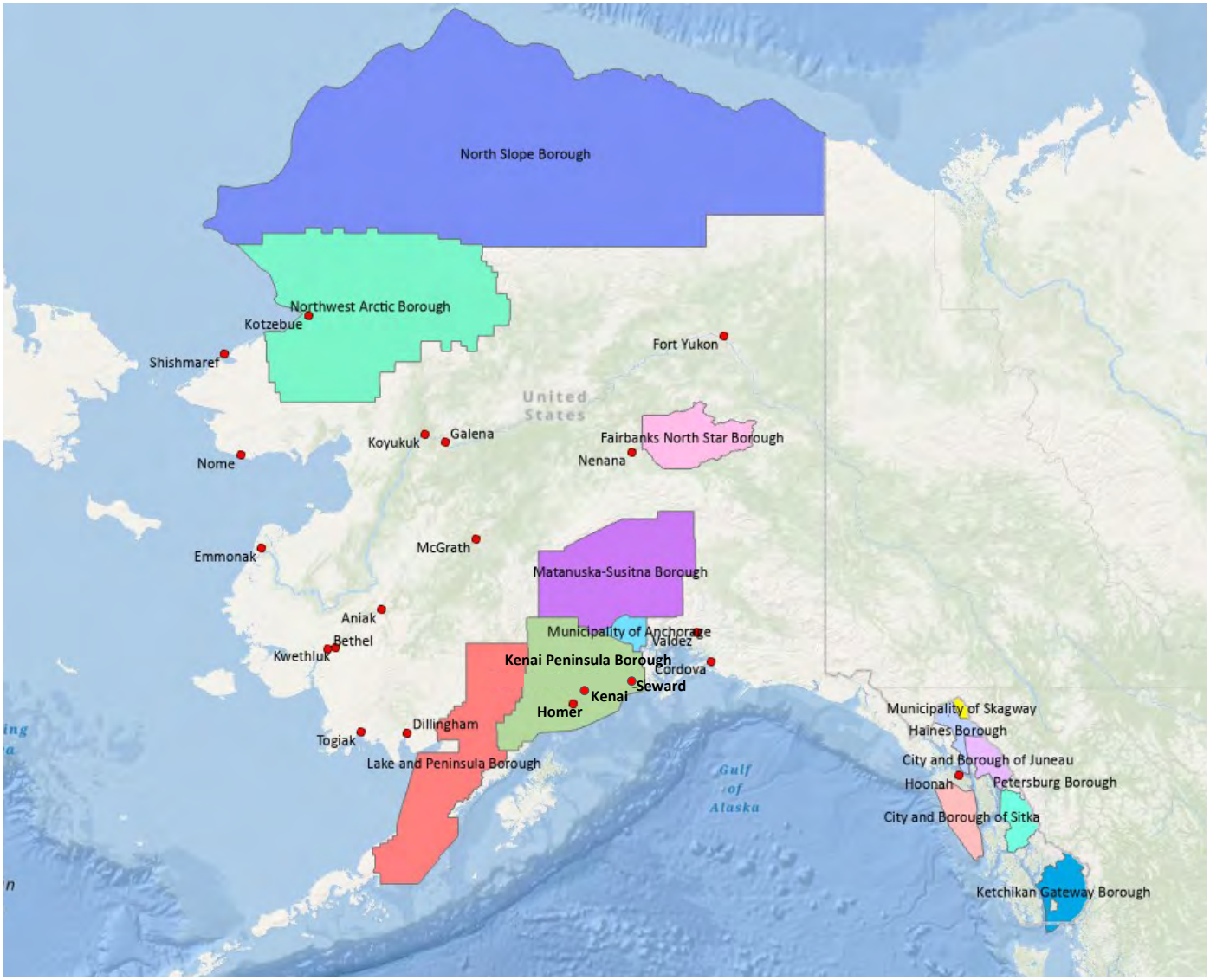
**Figure 17: Percentages of Alaska's NFIP and Non-NFIP Populations in Organized and Unorganized Boroughs**




***Data Source:*** *2023 Census Estimates, Alaska Department of Labor & Workforce Development*

Thirteen boroughs and 20 cities participate in the NFIP. The location of these municipalities is shown on the map in Figure 18, below.

**Figure 18: NFIP Participating Boroughs and Cities**




## Legend

- Cities
- Municipality of Anchorage
- Fairbanks North Star Borough
- Haines Borough
- City and Borough of Juneau
- Kenai Peninsula Borough
- Ketchikan Gateway Borough
- Lake and Peninsula Borough
- Matanuska-Susitna Borough
- Northwest Arctic Borough
- North Slope Borough
- Petersburg Borough
- City and Borough of Sitka
- Municipality of Skagway

# NFIP Community Characteristics

The average population of a NFIP-participating community is 20,763 residents (2023 DCCED Certified Population). Compared to all Alaska municipalities, NFIP municipalities are generally more urban or semi-urban in character, have larger populations, experience less dramatic population swings, have higher per capita income, and lower poverty rates.

## NFIP Participation and Local Government

Ninety percent of Alaska's population is location within NFIP-participating boroughs or cities. Ninety-six percent of the NFIP-participating population is located within borough governments; four percent is located within city governments. Of the 20 NFIP city government participants, the majority (16) are not located within an organized borough. In other words, these communities are without a regional form of government.

## Population

As municipalities that are enrolled in the NFIP tend to be more urban in character, they have also experienced slightly less dramatic population swings during the 2010 to 2023 time period. Between 2010 and 2020, two-thirds of NFIP-participating communities (21 of 33 or 69%) increased in population over the ten-year period. On average, the population of NFIP participating communities increased 3.53 % from 2010 to 2020. The average population increase from 2020 to 2023 was 4.43%.

Between 2010 and 2020, population growth ranged from .23% (City of Valdez) to 22.5% (City of Hoonah). During this same time period, 10 NFIP-participating communities declined in population. Population decline ranged from -0.20% (Municipality of Anchorage) to -26.59% (City of Fort Yukon). In total, nearly one-third (30%) of NFIP participants experienced population losses during the 2010 to 2022 period. In general, the rural and urban population change divide among NFIP communities remains consistent with statewide trends, with the more rural NFIP participants generally experiencing greater population losses than the more urban NFIP communities.

The data show more sobering results for the 2020-2023 time period. Between 2020 and 2023, nearly three-quarters (24 of 32 or 75%) of NFIP-participating communities showed population decreases, ranging from -0.13% for the city of Homes and -9.63% for the City of McGrath.

**Table 1: NFIP Participating Communities in Alaska**

| Community Participation | NFIP Participant | Municipal Govt. | #Cities/ Boroughs |
|---|---|---|---|
| In Program | City of Aniak | 20 cities | 56 |
| | City of Bethel | | |
| | City of Cordova | | |
| | City of Dillingham | | |
| | City of Emmonak | | |
| | City of Fort Yukon | | |
| | City of Galena | | |
| | City of Homer | | |
| | City of Hoonah | | |
| | City of Kenai | | |
| | City of Kotzebue | | |
| | City of Koyukuk | | |
| | City of Kwethluk | | |
| | City of McGrath | | |
| | City of Nenana | | |
| | City of Nome | | |
| | City of Seward | | |
| | City of Shishmaref | | |
| | City of Togiak | | |
| | City of Valdez | | |
| | Municipality of Anchorage | 13 Boroughs plus 32 Cities located within the boundaries of the 13 Boroughs *(not including the cities of Homer, Kenai, Kotzebue, and Seward which participate on their own; and Soldotna which is suspended)* | |
| | Fairbanks North Star Borough | | |
| | Haines Borough | | |
| | City and Borough of Juneau | | |
| | Kenai Peninsula Borough | | |
| | Ketchikan Gateway Borough | | |
| | Lake and Peninsula Borough | | |
| | Matanuska-Susitna Borough | | |
| | Northwest Arctic Borough | | |
| | North Slope Borough | | |
| | Petersburg Borough | | |
| | City and Borough of Sitka | | |
| | Municipality of Skagway | | |
| Suspended - In Program | City of Soldotna | 1 City, 1 Borough, Suspended | 2 |
| | City and Borough of Wrangell | | |
| Withdrawn | City of Delta Junction | | 98 |
| Not in Program | 9 First Class Cities, 81 Second Class Cities, 2 Home Rule Cities, 2 Home Rule Boroughs, and 3 Second Class Boroughs, 1 Reservation Organized Under Federal Law | | |

## Table 2: NFIP Local Government, Population and Population Change

| NFIP Participant | Incorporation Type | Census Pop. 2010 | Census Pop. 2020 | 2010-2020 Pop.Change | DCCED Pop. 2023 | 2020-2023 Pop. Change |
|---|---|---|---|---|---|---|
| McGrath, City of | 2nd Class City | 346 | 301 | -13.01% | 272 | -9.63% |
| Seward, City of | Home Rule City | 2,693 | 2,717 | 0.89% | 2,482 | -8.65% |
| Galena, City of | 1st Class City | 470 | 472 | 0.43% | 435 | -7.84% |
| Nome, City of | 1st Class City | 3,598 | 3,699 | 2.81% | 3,469 | -6.22% |
| Koyukuk, City of | 2nd Class City | 96 | 98 | 2.08% | 92 | -6.12% |
| Togiak, City of | 2nd Class City | 817 | 817 | 0.00% | 770 | -5.75% |
| Kotzebue, City of | 2nd Class City | 3,201 | 3,102 | -3.09% | 2,931 | -5.51% |
| Lake and Peninsula Borough | Non-Unified Home Rule Borough | 1,631 | 1,476 | -9.50% | 1,407 | -4.67% |
| Aniak, City of | 2nd Class City | 501 | 507 | 1.20% | 486 | -4.14% |
| Northwest Arctic Borough | Non-Unified Home Rule Borough | 4,322 | 4,691 | 8.54% | 4,511 | -3.84% |
| Kwethluk, City of | 2nd Class City | 721 | 812 | 12.62% | 787 | -3.08% |
| Bethel, City of | 2nd Class City | 6,080 | 6,325 | 4.03% | 6,154 | -2.70% |
| North Slope Borough | Non-Unified Home Rule Borough | 9,430 | 11,031 | 16.98% | 10,748 | -2.57% |
| Cordova, City of | Home Rule City | 2,239 | 2,609 | 16.53% | 2,566 | -1.65% |
| Skagway, Municipality of | 1st Class Borough | 968 | 1164 | 20.25% | 1146 | -1.55% |
| Hoonah, City of | 1st Class City | 760 | 931 | 22.50% | 917 | -1.50% |
| Ketchikan Gateway Borough | 2nd Class Borough | 13,477 | 13,948 | 3.49% | 13,762 | -1.33% |
| Sitka, City and Borough of | Unified Home Rule Borough | 8,881 | 8,458 | -4.76% | 8,350 | -1.28% |
| Petersburg Borough | Non-Unified Home Rule Borough | 3,203 | 3,398 | 6.09% | 3,357 | -1.21% |
| Dillingham, City of | 1st Class City | 2,329 | 2,249 | -3.43% | 2,222 | -1.20% |
| Anchorage, Municipality of | Unified Home Rule Borough | 291,826 | 291,247 | -0.20% | 289,810 | -0.49% |
| Valdez, City of | Home Rule City | 3,976 | 3,985 | 0.23% | 3,971 | -0.35% |
| Juneau, City and Borough of | Unified Home Rule Borough | 31,275 | 32,255 | 3.13% | 32,202 | -0.16% |
| Homer, City of | 1st Class City | 5,003 | 5,522 | 10.37% | 5,515 | -0.13% |
| Fairbanks North Star Borough | 2nd Class Borough | 97,581 | 95,655 | -1.97% | 96,747 | 1.14% |
| Shishmaref , City of | 2nd Class City | 563 | 576 | 2.31% | 590 | 2.43% |
| Emmonak, City of | 2nd Class City | 762 | 825 | 8.27% | 855 | 3.64% |
| Kenai Peninsula Borough | 2nd Class Borough | 47,704 | 50,560 | 5.99% | 52,647 | 4.13% |
| Matanuska-Susitna Borough | 2nd Class Borough | 88,995 | 107,081 | 20.32% | 111,752 | 4.36% |
| Nenana, City of | Home Rule City | 378 | 358 | -5.29% | 389 | 8.66% |
| Fort Yukon, City of | 2nd Class City | 583 | 428 | -26.59% | 499 | 16.59% |
| Haines Borough | Non-Unified Home Rule Borough | 2,508 | 2,080 | -17.07% | 2,575 | 23.80% |
| | **TOTAL** | **636,917** | **659,377** | **3.53%** | **664,416** | **4.32%** |
| | **AVERAGE** | **19,904** | **20,606** | | **20,763** | |

1 Census comparisons for 2010, 2020, and 2023 came from U.S. Census data for 2010 and 2020, and 2023 certified population data from the Alaska Department of Commerce, Community, and Economic Development.

2 The Kenai Peninsula Borough population listings for 2010, 2020, and 2023 exclude the populations of the Cities of Homer and Seward, which participate in the NFIP on their own and are listed separately in the table above.

3 The Northwest Arctic Borough population listing for 2010 , 2020, and 2023 excludes the population of the City of Kotzebue, which participates in the NFIP on its own and is listed separately in the table above.

## Other Community Characteristics

NFIP participants are located either on Alaska's coast (25%) or on rivers (38%). Some NFIP communities are both coastal and riverine (38%). Compared to all Alaska municipalities, NFIP participants have significantly higher rates of households with adequate plumbing – including both piped water and wastewater utilities. Only two communities are without piped water and wastewater: Koyukuk and Shishmaref. NFIP participants range in total quantity of local housing units from 43 (Koyukuk) to 119,276 (Municipality of Anchorage) housing units.

**Table 3: Other Community Characteristics**

| NFIP Participant | Coastal or Riverine | Unserved Community* | 2010 HH w/o Plumbing | Housing Units | Water Treatment System | Water Distribution Facilities | Wastewater Treatment Facilities | Wastewater Collection Facilities |
|---|---|---|---|---|---|---|---|---|
| Municipality of Anchorage | Both | No | 1 | 119,276 | Yes | Yes | Yes | Yes |
| City of Aniak | River | No | 15 | 229 | Yes | Yes | Yes | Yes |
| City of Bethel | River | No | 10 | 2,408 | Yes | Yes | Yes | Yes |
| City of Cordova | Both | No | 3 | 1,215 | Yes | Yes | Yes | Yes |
| City of Dillingham | Both | No | 7 | 1,039 | Yes | Yes | Yes | Yes |
| City of Emmonak | River | No | 12 | 211 | Yes | Yes | Yes | Yes |
| Fairbanks North Star | River | No | 7 | 44,059 | Yes | Yes | Yes | Yes |
| City of Fort Yukon | River | No | 54 | 307 | Yes | Yes | Yes | Yes |
| City of Galena | River | No | 37 | 256 | Yes | Yes | Yes | Yes |
| Haines Borough | Both | No | 16 | 1,024 | Yes | Yes | Yes | Yes |
| City of Homer | Coastal | No | 4 | 2,825 | Yes | Yes | Yes | Yes |
| City of Hoonah | Coastal | No | 4 | 385 | Yes | Yes | Yes | Yes |
| City and Borough of Juneau | Both | No | 1 | 13,451 | Yes | Yes | Yes | Yes |
| Kenai Peninsula Borough | Both | No | 7 | 31,439 | Yes | Yes | Yes | Yes |
| Ketchikan Gateway | Both | No | 2 | 6,458 | Yes | Yes | Yes | Yes |
| City of Kotzebue | Coastal | No | 7 | 1,164 | Yes | Yes | Yes | Yes |
| City of Koyukuk | River | Yes | 100 | 43 | Yes | No | No | No |
| City of Kwethluk | River | No | 100 | 208 | Yes | Yes | Yes | Yes |
| Lake and Peninsula | Both | No | 14 | 1,511 | Yes | Yes | Yes | Yes |
| Matanuska-Susitna | River | No | 8 | 30,879 | Yes | Yes | Yes | Yes |
| City of McGrath | River | No | 8 | 218 | Yes | Yes | | |
| City of Nenana | River | No | 5 | 219 | Yes | Yes | Yes | |
| City of Nome | Both | No | 5 | 1,559 | Yes | Yes | Yes | Yes |
| Northwest Arctic Borough*** | Both | No | 22 | 2,756 | Yes | Yes | Yes | Yes |
| Petersburg Borough | Coastal | No | 2 | 1,712 | Yes | Yes | Yes | Yes |
| City of Seward | Both | No | 1 | 1,123 | Yes | Yes | Yes | Yes |
| City of Shishmaref | Coastal | Yes | 96 | 149 | Yes | No | No | No |
| City and Borough of Sitka | Coastal | No | 1 | 4,175 | Yes | Yes | Yes | Yes |
| Municipality of Skagway | Both | No | 6 | 596 | Yes | Yes | Yes | Yes |
| City of Togiak | Coastal | No | 38 | 255 | Yes | Yes | Yes | Yes |
| City of Valdez | Coastal | No | 2 | 1,446 | Yes | Yes | Yes | Yes |

*Unserved Communities are communities where 45% or more homes have not been served either via pipes, septic tank & well, or covered haul systems
**Housing unit information for Municipality of Anchorage, Kenai Peninsula Borough, Ketchikan Gateway Borough, Lake and Peninsula Borough, Matanuska-Susitna Borough, Northwest Arctic Borough, Petersburg Borough and City of Seward from Population estimates, July 1, 2019, (V2019) US Census Bureau. All other community information from DCRA's Community Database Online (CDO).
*** Kivalina, a community within the Northwest Arctic Borough, is classified as an Unserved Community
Water and wastewater utility information from DCRA's CDO and from the Alaska Certified Water/Wastewater Operator Database at https://dec.alaska.gov/Applications/Water/OpCert/Home.aspx?p=Home

# FEMA Characteristics

Several programs administered and funded by FEMA work in concert with Risk MAP to achieve the goals and objectives of the Risk MAP Program. These programs, and the participation in them by Alaska's NFIP communities, are discussed in the following sections.

## Hazard Mitigation Plans

FEMA-funded Hazard Mitigation Plans (HMPs) form the foundation of a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. HMPs are community-driven, living documents that communities use to reduce their vulnerability to hazards. The plan and its process show the link between land-use decisions and vulnerability. The HMP serves as a tool to be used by planners or other officials to advise and inform decision makers.

State, Indian Tribal, and local governments are required to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance, including Hazard Mitigation Grants.

Hazard Mitigation Plans are significant to the Risk MAP Program because one of the goals of Risk MAP is to lead and support states, local, and tribal communities to effectively engage in risk-based mitigation planning. Risk MAP products can provide crucial information to communities to analyze, incorporate into their HMP updates, and identify actionable strategies that reduce risks. The majority of Alaska's NFIP-participating communities have adopted a local hazard mitigation plan; however nine communities have expired HMPs with no apparent update planned. Six NFIP-participating communities are in the process of updating local hazard mitigation plans (See Table 4, page 37).

## Cooperating Technical Partnerships

As noted earlier, the CTP Program is the means through which FEMA's Risk MAP Program is implemented. While DCRA implements the State of Alaska's Risk MAP Program through a Cooperating Technical Partnership with FEMA, Alaska's local governments have the opportunity to enter into Cooperating Technical Partnerships with FEMA for mapping projects taking place within their jurisdictional boundaries.

Each participating CTP community enters into an agreement with FEMA to do certain mapping projects documented in mutually agreed upon Mapping Activity Statements (MAS). Community partners will receive Community Rating System credits (see next section), which may lead to discounted flood insurance premiums for property owners.

Four NFIP-participating communities have CTP agreements with FEMA including: the Municipality of Anchorage, Fairbanks North Star Borough, City and Borough of Juneau, and the Matanuska- Susitna Borough. (See Table 4, page 37).

## Community Rating System

The Community Rating System (CRS) is a voluntary incentive program of the National Flood Insurance Program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS: reducing flood losses; facilitating accurate insurance rating; and promoting the awareness of flood insurance. Currently seven NFIP-participating communities take part in the CRS: the Municipality of Anchorage, City of Homer, Kenai Peninsula Borough, Ketchikan Gateway Borough, City of Nome, City of Seward, City of Valdez (See Table 4, below).

**Table 4: FEMA Characteristics**

| NFIP Participant | Hazard Mitigation Plan | HMP Year Approved | HMP Expiration | CTP Agreement | CTP Agree-ment Year | CRS Community |
|---|---|---|---|---|---|---|
| Municipality of Anchorage | Approved | 5/12/2022 | 5/12/2027 | Yes | 1999 | Yes |
| City of Aniak | Approved | 2/7/2022 | 2/7/2027 | No | | No |
| City of Bethel | Plan in Progress | 5/6/2018 | 5/6/2023 | No | | No |
| City of Cordova | Plan in Progress | 5/22/2018 | 5/22/2023 | No | | No |
| City of Dillingham | Approved | 1/18/2023 | 1/18/2028 | No | | No |
| City of Emmonak | Expired | 3/14/2023 | 3/14/2028 | No | | No |
| Fairbanks North Star Borough | Approved | 9/12/2021 | 9/12/2026 | Yes | 2004 | No |
| City of Fort Yukon | Plan in Progress | 1/10/2018 | 1/10/2023 | No | | No |
| City of Galena | Approved | 9/25/2022 | 9/25/2027 | No | | No |
| Haines Borough | Approved | 10/3/2022 | 10/3/2027 | No | | No |
| City of Homer | Approved | 6/26/2021 | 6/26/2026 | Yes | | Yes |
| City of Hoonah | Plan in Progress | 5/14/2018 | 5/14/2023 | No | | No |
| City and Borough of Juneau | Expired | 9/11/2012 | 9/11/2017 | Yes | 2004 | No |
| Kenai Peninsula Borough | Approved | 12/16/2019 | 12/16/2024 | No | | Yes |
| Ketchikan Gateway Borough | Plan in Progress | 1/11/2017 | 1/11/2022 | No | | Yes |
| City of Kotzebue | Approved | 11/18/2019 | 11/18/2024 | No | | No |
| City of Koyukuk | Expired | 4/29/2008 | 4/29/2013 | No | | No |
| City of Kwethluk | Expired | 2/23/2010 | 2/23/2015 | No | | No |
| Lake and Peninsula | Approved | 5/10/2022 | 5/10/2027 | No | | No |
| Matanuska-Susitna Borough | Approved | 2/25/2021 | 2/25/2026 | Yes | N/A | Yes |
| City of McGrath | Expired | 10/14/2018 | 10/14/2023 | No | | No |
| City of Nenana | Expired | 9/24/2010 | 9/24/2015 | No | | No |
| City of Nome | Plan in Progress | 2/1/2017 | 2/1/2022 | No | | Yes |
| North Slope Borough | Approved | | 2/27/2029 | No | | No |
| Northwest Arctic Borough | Approved | 1/23/2019 | 1/23/2024 | No | | No |
| Petersburg Borough | Expired | 6/13/2018 | 6/13/2023 | No | | No |
| City of Seward | Approved | 2/18/2021 | 2/18/2026 | No | | Yes |
| City of Shishmaref | Approved | 1/8/2023 | 1/8/2028 | No | | No |
| City and Borough of Sitka | Expired | 7/4/2019 | 7/4/2024 | No | | No |
| Municipality of Skagway | Approved | 5/11/2020 | 5/11/2025 | No | | No |
| City of Togiak | Approved | 2/11/2019 | 10/15/2024 | No | | No |
| City of Valdez | Expired | 3/11/2019 | 3/11/2024 | No | | Yes |

*Current as of September 30, 2024, as per Weekly Alaska Hazard Mitigation Plan Status report provided by FEMA Region 10.*

Information on flooding and erosion data in Alaska's communities is limited and oftentimes inaccurate. Floods have been recorded in more than half (56%) of NFIP-participating communities. In the past nineteen years, over two-thirds (68%) of NFIP communities have also experienced a federally declared disaster.

**Table 5. Flood and Erosion Characteristics**

| NFIP Participant | Flood | Most Recent Flood Event | Flood of Record Year | Worst Flood Event Year | Flood Insurance Study | Flood Gauge | AK Baseline Erosion Assessment | 2000-21 Fed Declared Disasters |
|---|---|---|---|---|---|---|---|---|
| Municipality of Anchorage | Yes | 1996 | 1967 | N/A | Yes | Yes | Minimal Erosion | 3 |
| City of Aniak | Yes | 2005 | 2002 | 1971 | Yes | No | Monitor Conditions | 5 |
| City of Bethel | Yes | 2009 | N/A | 1988 | Yes | No | Monitor Conditions | 5 |
| City of Cordova | Yes | 2006 | N/A | N/A | Yes | Yes | Priority Action | 2 |
| City of Dillingham | Yes | 2005 | N/A | 1929 | Yes | Yes | Priority Action | 0 |
| City of Emmonak | Yes | 2013 | 1989 | 1972 | Yes | Yes | Priority Action | 3 |
| Fairbanks North star | Yes | 2008/09 | 1964 | 1964 | Yes | Yes | Borough, Not rated | 2 |
| City of Fort Yukon | Yes | 2015 | N/A | 1949 | Yes | Yes | Monitor Conditions | 3 |
| City of Galena | Yes | 2013 | 1971 | 1945 | Yes | No | Monitor Conditions | 1 |
| Haines Borough | Yes | 2020 | N/A | 1967 | Yes | No | Monitor Conditions | 1 |
| City of Homer | Yes | 2014 | 1966 | N/A | Yes | Yes | Monitor Conditions | 2 |
| City of Hoonah | Yes | 2005 | N/A | N/A | Yes | No | No Erosion Issues | 0 |
| City and Borough of Juneau | Yes | 2020 | N/A | N/A | Yes | Yes | Minimal Erosion | 1 |
| Kenai Peninsula Borough | Yes | 2018 | N/A | N/A | Yes | Yes | Borough, Not rated | 5 |
| Ketchikan Gateway Borough | Yes | 2020 | N/A | N/A | Yes | Yes | Borough, Not rated | 1 |
| City of Kotzebue | Yes | 2004 | N/A | N/A | Yes | Yes | Monitor Conditions | 4 |
| City of Koyukuk | Yes | 2009 | 1963 | 1913 | No | No | Monitor Conditions | 4 |
| City of Kwethluk | Yes | 2020 | 1971 | 1963 | No | No | Monitor Conditions | 0 |
| Lake and Peninsula Borough | Yes | 2005 | 1948 | N/A | Yes | Yes | Borough, Not rated | 0 |
| Matanuska-Susitna Borough | Yes | 2019 | N/A | 2002 | Yes | Yes | Borough, Not rated | 4 |
| City of McGrath | Yes | 2009 | 1972 | 1957 | Yes | No | Priority Action | 2 |
| City of Nenana | Yes | 2008 | 2008 | 1967 | Yes | Yes | Monitor Conditions | 0 |
| City of Nome | Yes | 2009 | N/A | N/A | Yes | No | Monitor Conditions | 1 |
| Northwest Arctic Borough | Yes | 2021 | N/A | N/A | No | Yes | Borough, Not rated | 5 |
| Petersburg Borough | Yes | 2020 | N/A | N/A | Yes | No | No Erosion Issues | 3 |
| City of Seward | Yes | 2018 | N/A | N/A | Yes | Yes | Monitor Conditions | 2 |
| City of Shishmaref | Yes | 2020 | 1973 | 1973 | Yes | No | Priority Action | 5 |
| City and Borough of Sitka | Yes | 2020 | 1984 | N/A | Yes | Yes | Minimal Erosion | 4 |
| Municipality of Skagway | Yes | 2020 | 1943 | 1943 | Yes | Yes | Minimal Erosion | 1 |
| City of Togiak | Yes | 2015 | 1964 | 1964 | No | Yes | Minimal Erosion | 0 |
| City of Valdez | Yes | 2006 | N/A | 1905 | Yes | Yes | Monitor Conditions | 2 |

Most flood data is from U.S. Army Corps of Engineers, Alaska District Floodplain Management Database at: http://corpsmapu.usace.army.mil/cm_apex/cm2.cm2.map?map=POA , the Disaster Cost Index maintained by the Alaska Division of Homeland Security and Emergency Management and current as of September 28, 2021, and local hazard mitigation plans.

## Capacity to Regulate Land Use and to Participate in Land Use Planning

Alaska's Constitution confers broad authority on its local governments. Unlike many states that have centralized planning departments that regulate land use, Alaska State Law requires that planning, platting and land use regulation is carried out by Alaska's incorporated municipalities: home rule, first and second class boroughs, unified municipalities, and first class and home rule cities outside of boroughs. All other classes of municipalities (second class cities) may, but are not required to, exercise these powers. If a second class city is located within the unorganized borough, it has the option but not the duty to exercise planning, platting, and land use regulation within the boundaries of the city. Nine Alaskan cities (Aniak, Bethel, Emmonak, Fort Yukon, Koyukuk, Kwethluk, McGrath, Shishmaref and Togiak) participating in the NFIP fit into this category.

Alaska's local government structure and the authority vested in those local governments is significant to the implementation of the NFIP, because the ability to regulate land use is necessary for participation in the NFIP. The unorganized borough is not a municipal corporation; thus the State of Alaska has no legal authority to mandate planning, platting and land use regulation in second class cities or in unincorporated communities in the unorganized borough. Second class cities in the unorganized borough have the option, not the duty, to address development in the floodplain. Because there is no legal basis for land use regulation in Alaska's unincorporated communities, there is no authority to implement any compliance with the NFIP standards. Consequently, only a portion of Alaska's communities are eligible to participate in the NFIP.

Although NFIP participants must have planning and zoning authority, not all actively regulate land use within their jurisdictional boundaries. Table 6 (next page) shows the level of planning capacity for Alaska's NFIP participant communities.

Emmonak, Fort Yukon, Koyukuk, Shishmaref, and Togiak do not actively regulate land use or participate in land use planning. Nine NFIP-participating communities report not having a planning and zoning commission: Aniak, Emmonak, Fort Yukon, Galena, Koyukuk, Kwethluk, Nenana, Shishmaref, and Togiak. The communities that are not actively engaged in land use planning are also not part of an organized borough; thus there is no regional entity regulating land use.

Fortunately, all NFIP communities are generally engaged in community planning as evidenced by having a community plan adopted; however, type and quantity of community plan widely vary. The majority (59%) of NFIP participants have a paid staff planner. Just over half (54%) also have in-house GIS capacity; however, no NFIP participants report having a paid cartographer.

## Table 6: NFIP Community Planning Capacity

| NFIP Participant | Planning & Zoning Powers | Planning & Zoning Commission | Zoning Map | Community Plan | # Community Plans | Comprehensive Plan | Land Use Plan | Planner | GIS Tech | Cartographer | GIS Capacity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Municipality of Anchorage | Yes | Yes | Yes | Yes | 8 | 5 | 1 | Yes | Yes | No | Yes |
| City of Aniak | Yes | No | DK | Yes | 3 | 1 | | No | No | No | No |
| City of Bethel | Yes | Yes | Yes | Yes | 8 | 3 | | Yes | Yes | No | Yes |
| City of Cordova | Yes | Yes | Yes | Yes | 5 | 3 | | Yes | Yes | No | Yes |
| City of Dillingham | Yes | Yes | DK | Yes | 10 | 7 | 2 | Yes | Yes | No | No |
| City of Emmonak | No | No | No | Yes | 2 | | | Yes | Yes | No | No |
| Fairbanks North Star Borough | Yes | Yes | Yes | Yes | 8 | 1 | 2 | Yes | Yes | No | Yes |
| City of Fort Yukon | No | No | No | Yes | 3 | 2 | | No | Yes | No | No |
| City of Galena | Yes | No | Yes | Yes | 3 | 1 | | No | Yes | No | No |
| Haines Borough | Yes | Yes | Yes | Yes | 4 | 2 | | Yes | Yes | No | Yes |
| City of Homer | Yes | Yes | Yes | Yes | 8 | 3 | | Yes | Yes | No | No |
| City of Hoonah | Yes | Yes | DK | Yes | 4 | 1 | 2 | Yes | Yes | No | No |
| City and Borough of Juneau | Yes | Yes | Yes | Yes | 13 | 3 | 4 | Yes | Yes | No | Yes |
| Kenai Peninsula Borough | Yes | Yes | Yes | Yes | 8 | 3 | | Yes | Yes | No | Yes |
| Ketchikan Gateway Borough | Yes | Yes | Yes | Yes | 5 | 3 | | Yes | Yes | No | Yes |
| City of Kotzebue | Yes | Yes | DK | Yes | 4 | 2 | | Yes | No | No | No |
| City of Koyukuk | No | No | No | Yes | 2 | 1 | | Yes | No | No | No |
| City of Kwethluk | Yes | No | DK | Yes | 3 | 1 | | Yes | No | No | No |
| Lake and Peninsula | Yes | Yes | Yes | Yes | 5 | | | Yes | Yes | No | Yes |
| Matanuska-Susitna | Yes | Yes | Yes | Yes | 7 | 3 | | Yes | Yes | No | Yes |
| City of McGrath | Yes | Yes | DK | Yes | 1 | | | No | Yes | No | No |
| City of Nenana | Yes | No | DK | Yes | 1 | 1 | | No | Yes | No | No |
| City of Nome | Yes | Yes | Yes | Yes | 5 | 2 | | Yes | Yes | No | Yes |
| North Slope Borough | Yes | Yes | Yes | Yes | 6 | 1 | 1 | Yes | Yes | No | Yes |
| Northwest Arctic Borough | Yes | Yes | Yes | Yes | 4 | 1 | | Yes | Yes | No | Yes |
| Petersburg Borough | Yes | Yes | Yes | Yes | 7 | 2 | | Yes | Yes | No | Yes |
| City of Seward | No | No | Yes | Yes | 3 | 2 | 1 | No | Yes | No | Yes |
| City of Shishmaref | No | No | No | Yes | 10 | | | Yes | Yes | No | No |
| City and Borough of Sitka | Yes | Yes | Yes | Yes | 16 | 3 | 3 | Yes | Yes | No | Yes |
| Municipality of Skagway | Yes | Yes | Yes | Yes | 9 | 2 | 4 | No | No | No | Yes |
| City of Togiak | No | No | No | Yes | 3 | | | No | No | No | No |
| City of Valdez | Yes | Yes | Yes | Yes | 1 | 1 | | Yes | Yes | No | Yes |

## GIS Capabilities

GIS in-house capacity will enable Alaskan NFIP communities to participate in the new digital mapping program. GIS capacity includes trained staff as well as hardware and software and data that is available within a municipality. Of Alaska's 164 municipalities, only 20 have in-house GIS capacity. Seventeen of these communities participate in the NFIP:

**Table 7: GIS Capabilities of NFIP Communities**

| Community | NFIP | Non-NFIP |
|---|---|---|
| City and Borough of Juneau | X | |
| City and Borough of Sitka | X | |
| Haines Borough | X | |
| Kenai Peninsula Borough | X | |
| Ketchikan Gateway Borough | X | |
| Kodiak Island Borough | | X |
| Lake and Peninsula | X | |
| Matanuska-Susitna | X | |
| Municipality of Anchorage | X | |
| Municipality of Skagway | X | |
| North Slope Borough | X | |
| Northwest Arctic Borough | X | |
| Fairbanks North Star Borough | X | |
| City of Bethel | X | |
| City of Cordova | X | |
| City of Nome | X | |
| Petersburg Borough | X | |
| City of Valdez | X | |
| City of Seward | X | |
| City of Delta Junction | | X |

## Alaska Flood Hazard Maps

Flooding is responsible for millions of dollars of property damage each year. The State of Alaska averages approximately $2.3 million per year in disaster costs for flood-related emergency costs. Most of the flooding that occurs in Alaska results from rainfall, snowmelt, and ice jams restricting stream channels and backing up flow; tsunamis, earthquakes, and coastal storms also cause flooding. Unique to Alaska, 750 glacier-dammed lakes have been identified causing concern regarding dam failure. If a glacier ice dam fails, lake water is released resulting in downstream flooding called outburst flooding. The rapid melting of snow during volcanic eruptions, tsunamis, and coastal storms can also cause unanticipated flooding (Miller, 2008).

Flood hazard maps produced by FEMA have been one of the primary tools for flood hazard planning for Alaska's city and borough governments, specifically those that participate in the NFIP. Alaska's local governments and the State of Alaska rely on FEMA flood hazard maps to regulate floodplain development and otherwise mitigate for flood loses. FEMA flood hazard maps currently serve 42 Alaska borough and city governments; however three of these communities are mapped, but have been suspended from the NFIP. These communities have city governments that have failed to adopt ordinances to regulate development in the mapped flood hazard areas. The City of Delta Junction has also been mapped, but made the decision to withdraw from the NFIP in 2015.

Two cities, the City of Koyukuk and the City of Kwethluk, and one borough, the Northwest Arctic Borough, are in the "Emergency Phase" of the NFIP and have no FEMA Flood Insurance Rate Maps (FIRM) or Flood Hazard Boundary Maps (FHBM). Unlike many other states where local governments with flood hazards have long been identified and mapped, Alaska has 109 incorporated city and borough governments that have no FEMA flood hazard maps. Furthermore, no ordinances exist to regulate floodplain development. These cities and boroughs do not have the availability of federal flood insurance and federally-backed financial assistance may be withheld, stymieing economic development opportunities. Many of these same communities are flood-prone resulting in costly state and federal disasters without the benefit of federal flood insurance. FIRMs are available through FEMA and are on the Web at the FEMA Map Service Center at: https://msc.fema.gov/portal

FIRMs are useful in a variety of ways to many persons and agencies. Private citizens and insurance brokers use the FIRM to locate properties and buildings in flood insurance risk areas. Community officials use the FIRM to administer floodplain management regulations and to mitigate flood damage. Lending institutions and federal agencies use the FIRM to locate properties and buildings in relation to mapped flood hazards, and to determine whether flood insurance is required when making loans or providing grants following a disaster for the purchase or construction of a building. FIRMS should be updated continuously but this costs time and money that often is hard to find. Some of Alaska's FIRMs are between 30 and 44 years old. The average age of Alaska's firms is 16 years; nearly one-third of the maps are over 20 years old. FEMA, the State of Alaska, and NFIP communities are working to update maps as resources allow. Since 2011, 19 Alaskan cities and boroughs have been engaged in new Risk MAP studies; 10 of these have resulted in new FIRMs. These studies are discussed in more detail in the next section, ***Current Alaska Risk MAP Studies***,

beginning on page 45.

DCRA, as the designated State-Coordinating Agency for the NFIP, has historically assumed responsibility for the floodplain mapping program as well as producing community profile maps for smaller communities that include best available flood and erosion information. Since 2009, DCRA has also assumed responsibility for providing digital flood hazard maps to FEMA for new communities entering the NFIP. The work has largely been completed via community profile map contractors.

As illustrated by Table 8 on page 44, three NFIP-participating communities do not have a FIRM: the Cities of Koyukuk and Kwethluk, and the Northwest Arctic Borough (with the exception of the City of Kotzebue, which participates in the National Flood Insurance Program on its own). Of those NFIP participants with FIRMS, the number of panels range from 1 (Skagway, McGrath, and Nenana) to 184 (Matanuska-Susitna Borough). The number of maps with Letters of Map Change (LOMC) range from zero to 309 (Fairbanks North Star Borough). Firm map age ranges from less than one year to 42 years old (Skagway).

## Letters of Map Change (LOMC)

A LOMC is a letter which reflects an official revision to an effective FIRM. LOMCs are issued in place of the physical revision and republication of the effective map. The number of LOMCs submitted can indicate that a FIRM may need revision. The third column of Table 8 on the following page shows the number of effective FIRM panels with LOMCs submitted by NFIP-participating community.

**Figure 19: January 2015 Flooding on Ketchikan Creek, Creek Street, Ketchikan, Alaska**

## Table 8: Flood Insurance Rate Maps (FIRMS)

| Community Name | FIRM | EFFECTIVE MAPS | | | HISTORICAL MAPS | | | Preliminary Panels | Most Recent Effective FIRM Age (Years) |
|---|---|---|---|---|---|---|---|---|---|
| | | FIRM Panels | LOMCs | FIRM Effective Date | FIRM Panels | LOMCs | Initial FIRM Date | | |
| Municipality of Anchorage | Yes | 94 | 104 | 9/25/2009 | 54 | 74 | 9/5/1979 | | 15 |
| City of Aniak | Yes | 9 | 0 | 9/29/2006 | 4 | 0 | 9/5/1978 | | 18 |
| City of Bethel | Yes | 8 | 1 | 9/25/2009 | 7 | 3 | 6/28/1974 | | 15 |
| City of Cordova | Yes | 12 | 3 | 12/16/2015 | 2 | 4 | 5/24/1977 | | 9 |
| City of Dillingham | Yes | 5 | 1 | 9/30/1982 | 1 | 0 | 5/31/1974 | | 42 |
| City of Emmonak | Yes | 4 | 0 | 9/25/2009 | 1 | 0 | 9/21/1998 | | 15 |
| Fairbanks North Star Borough | Yes | 102 | 270 | 9/18/2020 | 54 | 369 | 6/25/1969 | | 4 |
| City of Fort Yukon | Yes | 8 | 0 | 2/3/2010 | | | | | 14 |
| City of Galena | Yes | 6 | 0 | 3/1/1984 | 2 | 0 | 10/12/1982 | | 40 |
| Haines Borough | Yes | 2 | 0 | 5/1/1987 | 1 | 0 | 5/31/1974 | | 37 |
| City of Homer | Yes | 13 | 1 | 10/20/2016 | 19 | 4 | 5/19/1981 | | 8 |
| City of Hoonah | Yes | 3 | 0 | 6/4/2010 | 2 | 0 | 1/14/1977 | | 14 |
| City and Borough of Juneau | Yes | 66 | 51 | 9/18/2020 | 44 | 145 | 5/9/1970 | | 4 |
| Kenai Peninsula Borough | Yes | 106 | 25 | 10/20/2016 | 52 | 12 | 9/27/2013 | 24 | 8 |
| Ketchikan Gateway Borough | Yes | 20 | 5 | 4/11/2024 | 3 | 0 | 5/9/1978 | | 0.5 |
| City of Kotzebue | Yes | 3 | 0 | 7/18/1983 | 1 | 0 | 1/23/1976 | | 41 |
| City of Koyukuk | No | - | | -- | | | - | - | 0 |
| City of Kwethluk | No | - | | - | | | - | - | 0 |
| Lake and Peninsula Borough | Yes | 5 | 0 | 2/3/2010 | | | | | 14 |
| Matanuska-Susitna Borough | Yes | 203 | 36 | 9/27/2019 | 204 | 278 | 2/28/1978 | | 5 |
| City of McGrath | Yes | 2 | 0 | 10/4/2011 | 1 | 0 | 1/9/1976 | | 13 |
| City of Nenana | Yes | 1 | 2 | 4/7/1999 | 1 | 0 | 6/9/1972 | | 25 |
| City of Nome | Yes | 8 | 0 | 5/3/2010 | 4 | 0 | 6/28/1974 | | 14 |
| Northwest Arctic Borough | No | - | | - | | | - | - | 0 |
| Petersburg Borough | Yes | 6 | 12 | 6/1/1982 | 1 | 0 | 6/14/1974 | | 42 |
| City of Seward | Yes | 23 | 0 | 10/20/2016 | 11 | 0 | 9/27/2013 | | 8 |
| City of Shishmaref | Yes | 4 | 0 | 5/3/2010 | 1 | 0 | 8/23/2001 | | 14 |
| City and Borough of Sitka | Yes | 45 | 1 | 8/1/2019 | 32 | 17 | 6/1/1982 | | 5 |
| Municipality of Skagway | Yes | 1 | 0 | 3/1/1977 | | | | | 47 |
| City of Togiak | Yes | 6 | 0 | 2/3/2010 | | | 2/3/2010 | | 14 |
| City of Valdez | Yes | 50 | 1 | 1/3/2019 | 64 | 4 | 11/1/1974 | | 5 |

***Information retrieved from FEMA's Map Service Center on August 5, 2024***

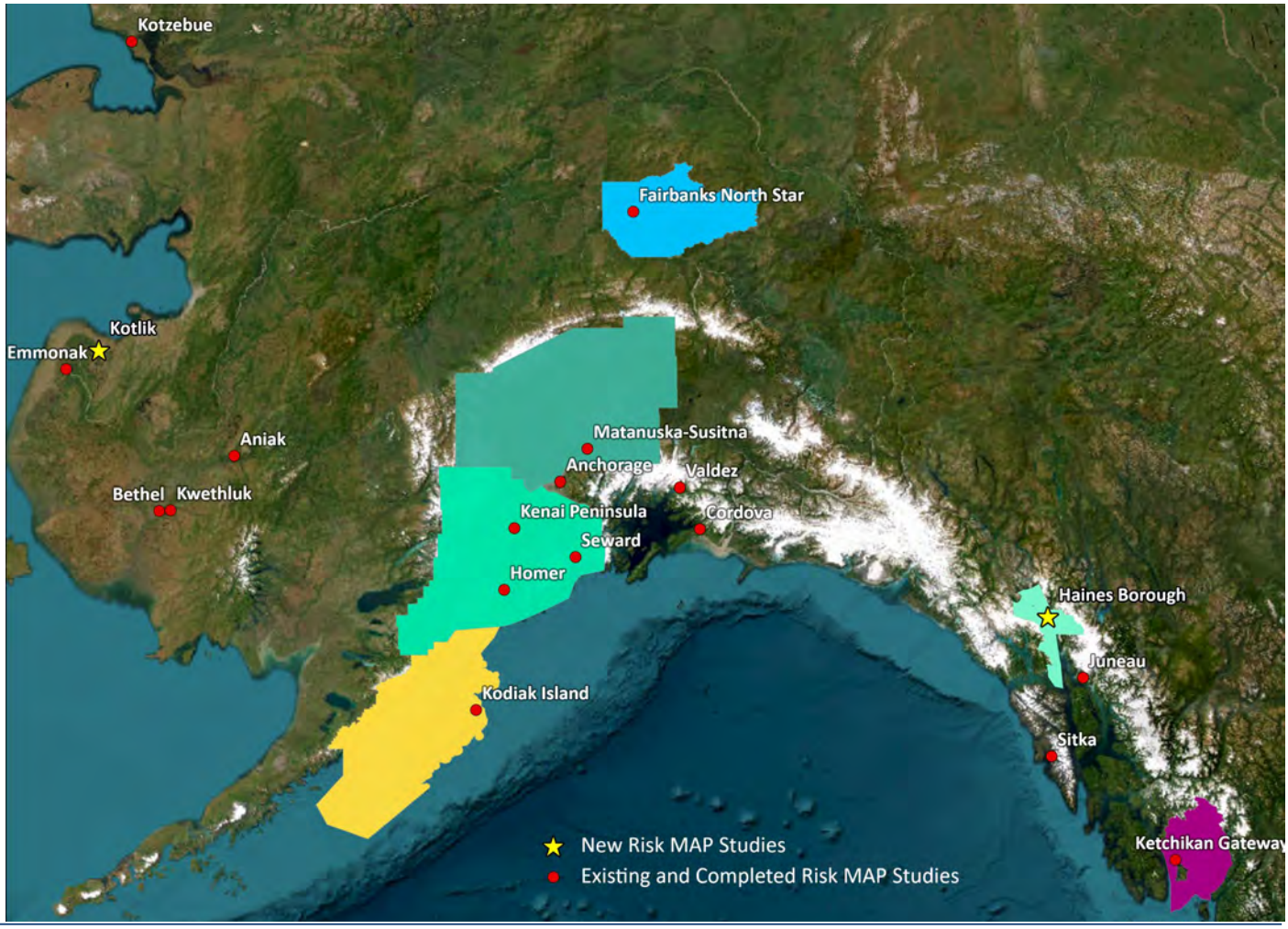
## Current Alaska Risk MAP Studies

As of September 2024, 19 local governments have been recipients of Risk MAP studies which have just begun, are underway or completed. Four of these local governments were also involved with studies begun under the Map Modernization Program. The studies range from risk and vulnerability assessments to LiDAR acquisition to physical map revisions.

Over the past few years, the State of Alaska, FEMA, and FEMA's mapping contractor conducted Risk MAP meetings with the Municipality of Anchorage, Fairbank North Star Borough, City and Borough of Juneau, Kenai Peninsula Borough, Ketchikan Gateway Borough, Kodiak Island Borough, Matanuska-Susitna Borough, City and Borough of Sitka, and the cities of Aniak, Bethel, Cordova, Emmonak, Kotzebue, Kwethluk, and Valdez.

Summaries of current and completed Risk MAP studies in Alaska begin on page 47. The map below shows the jurisdictions in which new, existing and completed Risk MAP studies are located. The State Risk MAP Coordinator and FEMA Region 10 have also engaged the Northwest Arctic Borough, Kotlik, and Haines Borough (identified by a star) in Pre-Discovery conversations.

**Figure 20: Alaska Risk MAP Studies - New, Existing and Completed**



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# Municipality of Anchorage

FEMA and the State of Alaska have been involved with a Risk MAP Study in the Municipality of Anchorage (MOA) that began in 2013.

## Study Scope

The Municipality of Anchorage Risk MAP Study included a series of non-regulatory risk and exposure assessments. The results and findings of these risk and exposure assessments have been summarized in a draft Risk Report which has been made available for the Municipality of Anchorage's review.

### Earthquake Risk Assessment

Maps depicting the shaking intensity and ground motion produced by an earthquake, called ShakeMaps, can be produced in near-real time for events or created for specific scenarios by regional seismic network operators in cooperation with the U.S. Geological Survey (USGS). ShakeMaps can be used for response, land use, and emergency planning purposes. The ShakeMaps selected by FEMA, the Municipality of Anchorage, and the Alaska Division of Geological and Geophysical Surveys (DGGS) for this analysis represented the best available data at the time:

- M7.5 Castle Mountain Scenario
- M7.2 lntraplate Scenario
- M7.1 Border Ranges Fault

FEMA's contractor incorporated individual parcel data from the Municipality of Anchorage into Hazus to allow losses to be reported at the parcel level. The team incorporated only properties with buildings (improvements) into the analysis; therefore, the team did not assess impacts to vacant land.

As noted, the ShakeMaps listed above were the best available data to run the earthquake risk assessment. Since the 2018 Cook Inlet earthquake took place, more recent ShakeMaps are available and could be used to update the earthquake risk assessment.

### Flood Exposure Assessment

In 2009, FEMA created a digital Flood Insurance Rate Map for the Municipality of Anchorage using existing U.S. Army Corps of Engineers work maps to regulate and manage flood hazards in Anchorage, Chugiak, Eagle River, Girdwood, Indian, and other regions within the Municipality of Anchorage. Special Flood Hazard Areas (SFHAs) based on existing modeling were mapped for Anchorage, Chugiak, Eagle River, and Girdwood. Portions of the Municipality of Anchorage are mapped as Zone D, areas where there are possible but undetermined flood hazards, as no assessment of flood hazards has been conducted. These maps were used for the flood exposure assessment. Due to the age and the type of data used, an updated flood study with high quality LiDAR data could produce a more accurate flood risk assessment for the Municipality of Anchorage.

### Avalanche Exposure Assessment

The avalanche exposure assessment was based on the 1982 ***Anchorage Snow Avalanche Zoning Analysis*** prepared by Arthur Mears. Due to the age of this information, more current data could be collected to

refresh this exposure assessment.

## Dam Failure Exposure Assessment

The dam failure exposure assessment performed by FEMA's contractor measured potential impacts of dam inundation based on the failure of dams. Dam flooding was estimated based on the inundation by floodwater of a specified area being protected by a dam or levee. Dam inundation areas varied based on the type of structure, location of structural elements, and flooding source being addressed.

## Landslide Vulnerability Assessment

To estimate where landslide hazard occurrences could potentially affect properties within the Municipality of Anchorage, the project team performed a spatial analysis to identify vulnerable structures with an estimated potential loss based on exposure. For this exposure assessment, the team compared the locations of improved parcels to the geographic extent of deep transitional landslides (Jibson and Michael, 2009). Spatial data for shallow landslide zones is not available.

## Wind Exposure Assessment

Wind risk data was obtained from the Municipality of Anchorage. For this exposure assessment, the FEMA's contractor compared locations of improved parcels to the geographic extent of high wind.

## Wildfire Vulnerability Assessment

The wildfire exposure assessment was based on historic wildfire incidents gathered from USGS, BLM, DGGS and FEMA.

## Flood Study Priorities

Flood study needs and priorities for the flood sources impacting MOA will be documented in the Risk Report that FEMA can use as funding becomes available for additional riverine flood insurance studies. The report will address the following topics:

1. Vertical Datum – document the steps needed for MOA to transition to the use of NAVD88 and any outside assistance needed to make the transition.
2. LiDAR – document existing LiDAR and other topographic data, including details on data quality, and determine areas where future LiDAR acquisition is desired.
3. Re-delineation – document issues with previous re-delineations of Special Flood hazard Areas.
4. New Flood Studies – document flooding sources in MOA and prioritize areas for new flood insurance studies.
5. Levee Policy – document levees in MOA and the impact on flood studies based on FEMA's Levee Policy.

## Outstanding/Pending Flood Studies

In addition to the new Risk MAP study discussed above, there are two outstanding/pending flood studies in the MOA:

- A Physical Map Revision incorporating new studies for Furrow and Girdwood Creeks in 2006. This project is a legacy Map Mod project which is currently on hold due to the change in FEMA's levee policy.
- Under the Risk MAP Program, FEMA commenced a Physical Map Revision/LiDAR Acquisition project comprised of a mix of detailed studies and redelineations, including a detailed study of Eagle River and re-delineation of Girdwood flooding sources and of Little Campbell Creek. This project has been suspended due to numerous concerns the Municipality had with technical and procedural aspects of *the project, including the vertical datum and the scope of the project study. FEMA would like to continue the project once these concerns are addressed and resolved.*

**Figure 21: Damage following 2013 Anchorage wind storm**

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# City of Aniak

The Risk MAP process began for the City of Aniak on October 30, 2015 when the State and FEMA conducted a Risk MAP Interview. During the interview, Aniak officials were asked to identify persistent flood problems and other hazard areas of concern, which will discussed in more detail during the Discovery Meeting.

The Alaska State Risk MAP Coordinator, FEMA's Risk Analyst and the Alaska State Mitigation Planner travelled to Aniak on July 27, 2016 to conduct a Risk MAP Discovery Meeting with City of Aniak leadership and staff. We discussed the purpose of the Risk MAP Program and how it could benefit the City of Aniak. Aniak's Local Hazard Mitigation Plan (LHMP) was completed in 2015, so the next update will be in 2020. FEMA and the State discussed how the Risk MAP process could inform the next update of the LHMP. City staff identified flood, fire and erosion hazards on a map. This information was developed into a Discovery map, which accompanied the Discovery report, presented to the community in January 2017.

**Figure 22: Flooding in the Village of Aniak**

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## City of Bethel

The Risk MAP process began for the City of Bethel on May 27, 2015 when the State and FEMA conducted a Risk MAP Interview. During the interview, Bethel officials identified persistent flood problems and other hazard areas of concern, which will discussed in more detail during the Discovery Meeting.

The Alaska State Risk MAP Coordinator, FEMA's Risk Analyst and the Alaska State Mitigation Planner travelled to Bethel on June 15, 2016 to conduct a Risk MAP Discovery Meeting with City of Bethel staff and community members. The State and FEMA discussed the purpose of the Risk MAP Program and how it could benefit the City of Bethel. Bethel's Local Hazard Mitigation Plan (LHMP) was completed in 2008, so the plan has expired. The City is considering an update to the plan in the near future. FEMA and the State discussed how the Risk MAP process could inform the next update of the LHMP. The community identified flood, fire, permafrost and erosion hazards on a map. This information was developed into a Discovery map, which accompanied the Discovery report, presented to the community in January 2017.

**Figure 23: Bethel, Alaska, July 2016**

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# City of Cordova

FEMA and the State of Alaska are conducting a coastal Risk MAP Study in the City of Cordova that began in 2011 and was completed in the winter of 2016.

## Study Scope

The scope of work of the City of Cordova Risk MAP Study includes (see also the map on page 53)

- The mapping of approximately 9.7 miles of shoreline utilizing the new storm surge modeling (coastal hydrology) and overland wave height analysis (coastal hydraulics), as well as floodplain boundaries for 1-percent and 0.2-percent-annual-chance (100- and 500-year) flood events. Updated areas include approximately 4.5 miles of Eyak Lake, 1 mile of Eyak River using detailed study analysis, 1.2 miles of Ibek River using approximate study analysis, and 1.0 miles of Shaded Zone X on Fleming Creek, Creek No. 1, and Creek No. 2 using approximate study analysis.
- Preparation of a regulatory Flood Insurance Study (FIS) Report document to the Community. A FIS is a book that contains information regarding flooding in a community and is developed in conjunction with the FIRM. The FIS, also known as a flood elevation study, frequently contains a narrative of the flood history of a community and discusses the engineering methods used to develop the FIRM. The study also contains flood profiles for studied flooding sources and can be used to determine Base Flood Elevations for some areas.
- Preparation of a regulatory Flood Insurance Rate Map (FIRM) map for all panels within the Community which identifies the Community's flood zones, base flood elevations, and floodplain boundaries. This map is used to determine where the purchase of flood insurance is required for properties with federally-backed mortgages. The preliminary FIS and DFIRM's were released on August 25, 2014.
- All of the above datasets will be in the in the North American Vertical Datum of 1988.
- The State and FEMA will provide guidance, feedback, coordination and technical support throughout the Risk MAP Project Life Cycle.
- Utilizing existing tsunami inundation maps, and evacuation maps, tsunami-focused public outreach materials were developed for the City of Cordova, to be utilized during the July 15th Copper River Salmon Festival in Cordova, including the following tasks:
  - Develop a document that incorporates existing tsunami inundation maps for Cordova with existing tsunami evacuation routes in a format repeatable by the AK DHS&EM for use in other tsunami prone communities
  - Develop tsunami outreach and preparedness messaging and add to the evacuation/inundation maps that can be utilized throughout the State of Alaska in future tsunami outreach materials
  - Provide a template for future tsunami inundation and evacuation mapping with messaging for future Alaska mapping efforts
  - Printed tsunami inundation and tsunami evacuation maps and messaging will be provided by the Alaska Division of Homeland Security and Emergency Management
  - Assistance with planning and implementation of a tsunami outreach event in coordination with

the Copper River Salmon Festival to be held July 15th, 2017

- Alaska's Division of Homeland Security and Emergency Management will provide the Quake simulator for use during the Copper River Salmon Festival on July 15th, 2017

## Cordova Project Status

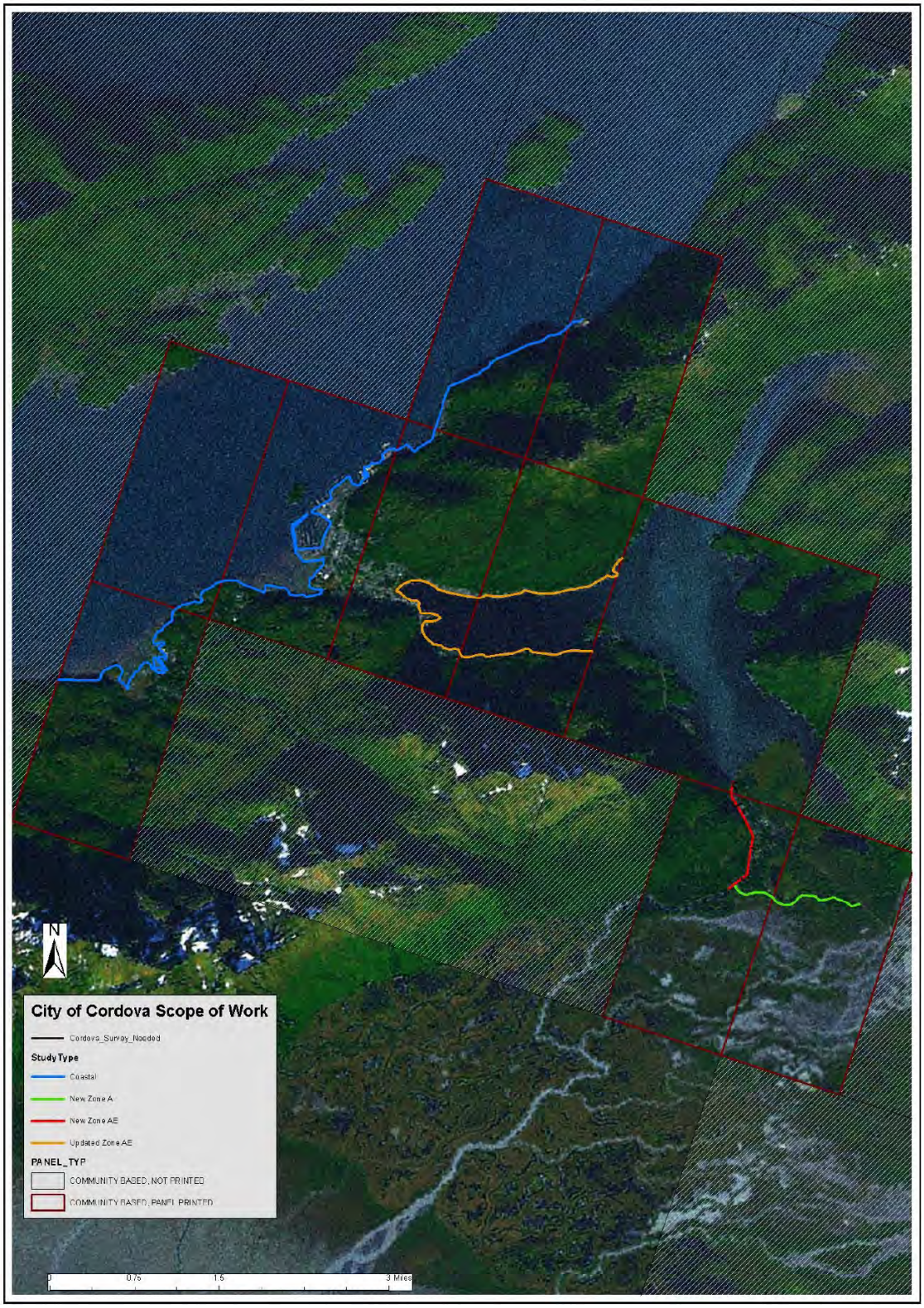
The flood study has concluded and the FIRMs and FIS became effective on December 16, 2015. Once all risk assessments are completed, FEMA will compile them into a multi-hazard Risk MAP Risk Report, which will include a risk assessment of flood, earthquake, and tsunami hazards.

A Resilience Workshop Webinar was held with the City of Cordova on February 22, 2016 to discuss the results and risk reduction strategies. A follow-up meeting was held March 18, 2016. The table below illustrates project status and includes major milestones with dates.

**Table 9: Cordova Project Status**

| Activity | Actual or Projected End Date |
|---|---|
| Cordova Discovery Interview | February 11, 2011 |
| Cordova Discovery Meeting | March 4, 2011 |
| Base Map Acquisition | Spring 2011 |
| Discovery Report | May 2011 |
| Perform Field Survey/Develop Topographic Data | Summer 2013 |
| Perform Coastal Analysis/Hydraulic Analysis | January 2014 |
| Perform Floodplain Mapping/Develop DFIRM Database | Spring 2014 |
| Draft Work Maps Issued | March 14, 2014 |
| Flood Risk Review Meeting | June 25, 2012 |
| Preliminary DFIRM/FIS Released | August 25, 2014 |
| Consultation Coordination Officers (CCO) Meeting | September 23, 2014 |
| Public Meeting/Workshop | September 23, 2014 |
| Revised Preliminary DFIRM/FIS Release | October 31, 2014 |
| 90-Day Appeal Period Start Date | January 2, 2015 |
| 90-Day Appeal Period End Date | April 4, 2015 |
| Letter of Final Determination Issued | June 16, 2015 |
| DFIRM/FIS Effective Date | December 16, 2015 |
| Draft Multi-Hazard Risk Report | Winter 2016 |
| Risk MAP Resilience Webinar | February 22, 2016 |
| Flood Risk Datasets (CSLF, depth grids) | February 23, 2016 |
| Delivery of Final Risk report and Risk Assessment Database | Winter 2016 |

**Figure 24: Map of Cordova Project Scope**



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# City of Emmonak

The Risk MAP process began for the City of Emmonak on May 28, 2015 when the State and FEMA conducted a Risk MAP Interview. During the interview, Emmonak officials identified persistent flood problems and other hazard areas of concern, which will discussed in more detail during the Discovery Meeting.

The Alaska State Risk MAP Coordinator, FEMA's Risk Analyst and the Alaska State Mitigation Planner travelled to Emmonak on June 16, 2015 to conduct a Risk MAP Discovery Meeting with City of Emmonak leadership and community members. The State and FEMA discussed the purpose of the Risk MAP Program and how it could benefit the City of Emmonak. Emmonak's Local Hazard Mitigation Plan (LHMP) was completed in October 7, 2014, so the plan will expire soon. FEMA and the State discussed how the Risk MAP process could inform the next update of the LHMP. The community identified flood, fire and erosion hazards on a map. This information was developed into a Discovery map, which accompanied a Discovery report, presented to the community on September 9, 2015.

## Channel Migration Project

As part of Emmonak's Risk MAP study, FEMA funded the Alaska Division of Geological and Geophysical Surveys to conduct a channel migration study at Emmonak. The Channel Migration Study of Emmonak, Alaska was completed in November 2018 and is available online at http://dggs.alaska.gov/webpubs/dggs/ri/text/ri2018_001.pdf.

On a regional scale, the study found that major flood events, particularly from ice jams, have the potential to migrate channels and reroute Yukon River discharge across the floodplain. Changes to river morphology could result in less water flowing through Kwiguk Pass, which could impact local commercial and subsistence fishing activities as well as barge access to the community. DGGS recommended that additional studies be conducted to better understand the potential for channel migration near Emmonak. Additionally, minimal information is available on historical floods in the region. Historical information that would benefit future studies includes:

- The type of flood event that occurred, the location of ice jams (if appropriate), and flood extent beyond the community location.
- Future flood events should be documented by mapping flood extents and monitoring river water levels on Kwiguk Pass.
- Studies to numerically model river dynamics would benefit from additional elevation and bathymetric data of the study area.

On a local scale, the study found that erosion of the Yukon River and Kwiguk Pass have the potential to significantly impact community infrastructure. Based on historical orthoimagery and lidar, rates of shoreline change on Kwiguk Pass are generally on the order of +/- 1 m/year (3.3 ft/year). Certain areas experience higher rates of erosion, including the river shoreline east of the city dock (average 2.03 m/year [6.7 ft/ year]):

- Road infrastructure along the river to the east of the city dock is expected to experience significant impacts from erosion by 2020.
- Erosion of infrastructure can be mitigated through constructing a hardened river bank, moving, or rebuilding infrastructure. Although hardened structures provide immediate protection from erosion events, they have limited lifetimes and can redirect river energy to cause erosion downstream.
- The study recommended continued monitoring and reanalysis of erosion rates will improve the understanding of whether or not erosion rates are increasing or decreasing through time and whether erosion is episodic or continuous.

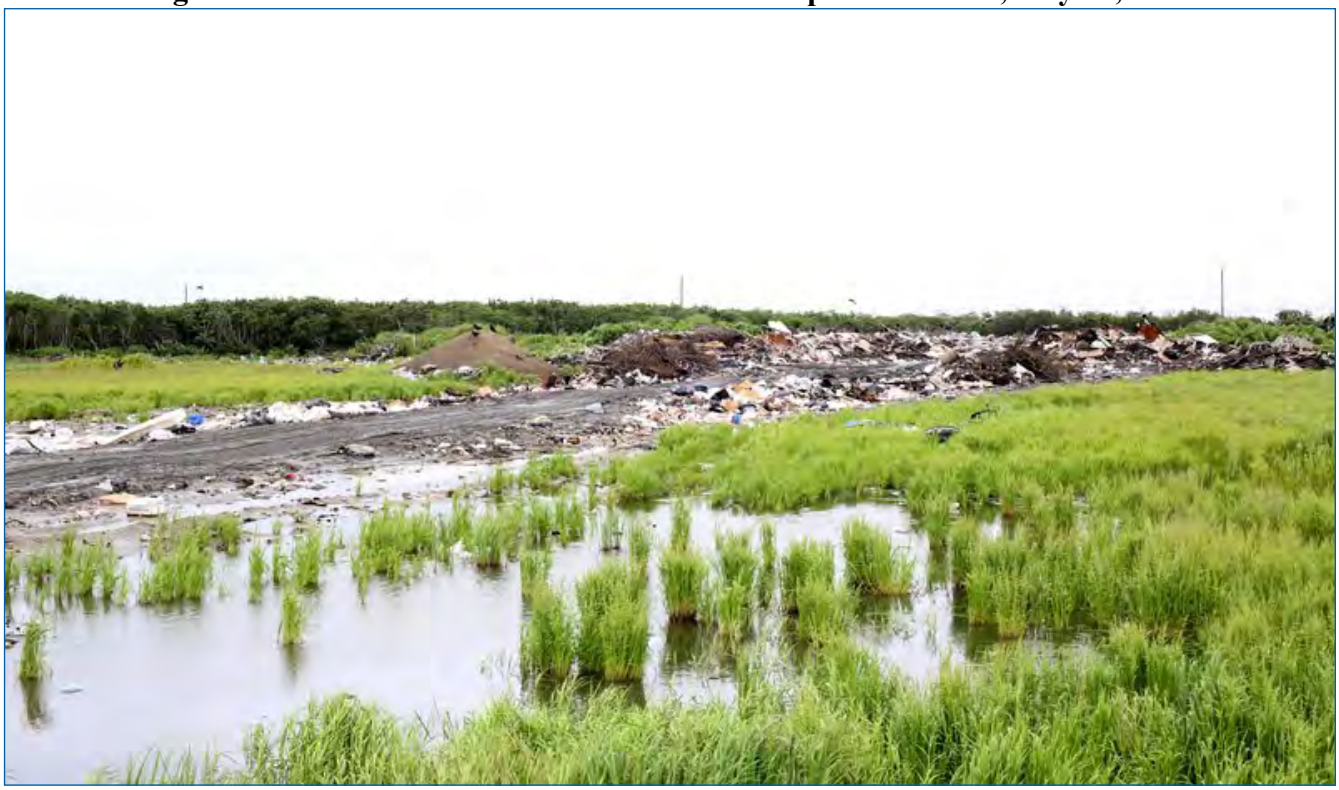
The table below illustrates project status and includes major milestones with dates.

**Table 10: City of Emmonak Project Status**

| Activity | Actual or Projected End Date |
|---|---|
| Discovery Meeting | June 16, 2015 |
| Discovery Report distributed | September 2015 |
| LiDAR collected | August 30, 2016 - June 30, 2017 |
| Channel Migration Assessment | November 2018 |

**All projected dates are subject to revision as the project progresses*

**Figure 25: Debris from flood on Emmonak dump service road, July 15, 2013**



# Fairbanks North Star Borough

## Approximate Flood Study incorporated with Tanana River flood study and Zone A study

This project commenced in September 2020. FEMA's mapping contractor obtained 2017/2018 Light Detection and Ranging Digital Terrain Model (LiDAR/DTM) datasets from the Alaska Division of Geological and Geophysical Surveys (DGGS) Elevation portal. Hydrology using Regression/Gage along with Rainfall Runoff was finalized in March 2021. Hydraulics for Phase 1 of the Base Level Engineering (BLE) project was completed in mid-July 2021. FNSB requested approximately 215 miles of additional BLE stream reaches in January 2021. This added footprint was considered during the next phase of the project, which started in August 2021. Hydrology for the additional streams and multi-frequency results for all streams were completed in December 2021. Field Survey was also completed in December 2021. The Zone A Hydraulic study was completed in October 2022. The Tanana River Study Hydrology was submitted to FEMA and finalized in December 2021. In a separate project, the Hydraulic study for the Tanana River was submitted by the consulting firm, HDR in October 2022.

Hydraulic modeling for the Approximate (Zone A) Studies was completed in October 2022. FEMA's mapping contractor has incorporated the mapping outputs into the Draft DFIRM database, which will be used for Preliminary Production. The Draft Zone A floodplain mapping and associated outputs have been placed on the FEMA GeoPlatform (see link below).

Part of the Floodplain Mapping process is adding effective floodplain within the projected panels. The effective floodplains were digitized from the previous non-modernized community panels. The effective floodplains will be tied into new flood study data. This new panel footprint is included with the GeoPlatform.

Tie-ins between the Tanana River flood study, effective flood studies, and the Zone A study have been completed. The Flood Risk Review (FRR) meeting was held on July 6, 2023. After the FRR, it was determined a follow-up meeting was necessary to allow the new FNSB Floodplain Administrator to have direct involvement. This follow-up meeting was held on August 29, 2023. During the follow-up meeting, a comment on the Perkins Landing area Tanana River Floodway delineation was discussed. FNSB requested another look at that area to be more in line with the river's edge. The consulting firm, HDR, was tasked with reviewing the model and coordinating with FNSB. An extended comment period was provided to FNSB and set for October 1, 2023.

On September 29, 2023, FNSB provided comments on the FY19 & FY21 studies via email. HDR submitted Tanana River Floodway revisions to FEMA's mapping contractor on October 3, 2023. On November 6, 2023, FEMA and FEMA's mapping contractor held a call with FNSB to go over the comments. The only remaining comment not addressed during that call regarded the flood mapping for Isabella Creek in the Bentley Avenue area. FEMA Region 10 and FEMA's mapping contractor revisited the modeling approach for Isabella Creek.

The revised floodplains for Tanana River and Isabella Creek have been added to the Risk MAP Project

Portfolio at the FEMA GeoPlatform link below [see "Draft (2023.12)" tab].
The Draft results were presented to FNSB via email on December 14, 2023. No further comments were received. The FRR Comment Resolution was completed in January 2024.

Data from these efforts can be viewed at the following locations:FEMA GeoPlatform and Flood Study Data:

- **Flood Study Lifecycle (History, Chena Slough, Effective, Scope, Draft Zone A, Draft Tanana, Draft Combined): https://arcg.is/10urOr**
- **Preliminary Viewer (Draft Results – Tanana and Zone A's): https://experience.arcgis.com/experience/fc1c8a620a6944b6a00cc52e61c002f0/page/Effective-Floodplains-(2021)/**

## Recent Activity

Following the Flood Risk Review (FRR) comment resolutions, a coordination call between FEMA, FNSB, FEMA's mapping contractor, State of Alaska, and FEMA's community engagement contractor, Resilience Action Partners, was held on January 10, 2024, to discuss the upcoming Public Outreach activities. Resilience Action Partners presented community outreach opportunities and resources with FNSB. A proposed timeline for next steps was also provided.

As part of the outreach activities, the Flood Risk Products (FRPs) were discussed, which include Changes Since Last FIRM (Flood Insurance Rate Map), Flood Depth Grids, and Water Surface Elevation Grids. These supplemental products include additional information on the Zone A Approximate studies and the Tanana River. The plan is to finalize these products in the coming month and provide to FNSB.

Prior to community outreach, the project team will add 0.2% annual chance flood hazard areas to studied Zone A reaches and host on the FEMA GeoPlatform. These hazard areas will provide additional hazard information to make risk-informed decisions.

## Next Steps

FEMA's mapping contractor will be finalizing the DFIRM Database and starting the Preliminary Mapping Process, with a Preliminary Release tentatively scheduled for September 2024.

Along with the Preliminary production, FEMA and Resilience Action Partners will be coordinating with FNSB on any Preliminary Outreach activities.

Project Milestones and Deliverables are summarized on the table on the next page:

**Table 11: Fairbanks North Star Borough Approximate Flood Study Status**

| Activity | Actual or Projected End Date |
|---|---|
| Flood Study Kick-Off Meeting | August 27, 2020 |
| BLE Map Release (GeoPlatform) | July 21, 2021 |
| Flood Study Kick-Off Meeting | September 22, 2021 |
| Draft Map Release – Zone A's | January 24, 2023 |
| Draft Map Release – Tanana River | February 18, 2023 |
| Flood Risk Review (FRR) Meeting | July 6, 2023 & August 29, 2023 |
| Flood Risk Product Release | May/June 2024* |
| Preliminary DFIRM/FIS Release | Fall/Winter 2023* |
| Consultation Coordination Officers (CCO) Meeting | Spring 2024* |
| Preliminary DFIRM/FIS Release September 2024* | Spring 2024* |
| Consultation Coordination Officers (CCO) Meeting | Summer 2024* |
| Public Meeting/Workshop Winter 2024/2025* | Fall 2024* |
| 90 Day Appeal Period Starts Spring 2025* | Summer 2024* |
| 90 Day Appeal Period Ends Summer 2025* | TBD |
| Letter of Final Determination TBD | TBD |
| Risk MAP Resilience Workshop TBD | TBD |
| Maps and FIS become Effective | TBD |

**All projected dates are subject to revision as the project progresses*

## 2016-2018 Chena Slough Flood Study

In 2014, when the Fairbanks North Star Borough's effective Flood Insurance Study was being completed, the FNSB identified a need for updated flood hazard mapping of Chena Slough. The FNSB applied for funding for this project through FEMA's CTP Program and was subsequently awarded a grant for the project. The flood study results were incorporated into new Flood Insurance Rate Maps (FIRMs) and a Flood Insurance Study (FIS) for the Chena Slough area. The new flood hazard maps incorporating the Chena Slough analysis became effective on September 18, 2020. Effective maps are available for download on FEMA's Flood Map Service Center website (https://msc.fema.gov/portal/advanceSearch).

The table below summarizes project status and includes major milestones with dates:

**Table 12: Fairbanks North Star Borough Chena Slough Project Status**

| Activity | Actual or Projected End Date |
|---|---|
| Flood Study Kick-Off Meeting | November 23, 2016 |
| Preliminary DFIRM/FIS Release | February 15, 2019 |
| Consultation Coordination Officers (CCO) Meeting | April 23, 2019 |
| Public Meeting/Workshop | June 20, 2019 |
| 90-Day Appeal Period Starts | September 6, 2019 |
| 90-Day Appeal Period Ends | December 5, 2019 |
| Letter of Final Determination (LFD) | March 18, 2020 |
| Maps and FIS became Effective | September 18, 2020 |

**All projected dates are subject to revision as the project progresses*

## 2006-2014 Legacy Map Modernization Study

In 2014, FEMA completed a legacy Map Modernization study begun in 2006 to re-study some of the map panels in the Fairbanks North Star Borough FIRM.

The scope of the project included detailed study of the Chena River from its mouth to Moose Creek Dam, Noyes Slough, and the Little Chena River from its confluence with Chena River to 10,800 feet upstream of Chena Hot Springs Road. This study also included the flood-prone areas along the Tanana River and the Chena Slough that are unchanged from the August 1982 edition of the Flood Insurance Rate Map. Earlier studies on the Chena and Little Chena rivers were approximations of flood potentials derived from aerial photography during actual flooding events. This study was an integral part of a U.S. Army Corps of Engineers Environmental Assessment on the Chena River Lakes Flood Control Project which concluded that the congressionally authorized maximum flow release in downtown Fairbanks of 12,000 cubic feet per second (cfs) should not be changed. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards.

The revised flood hazard determinations and FIRM map panels became effective on March 17, 2014.

# City of Homer

In Early February 2011, FEMA initiated a Coastal Physical Map Revision study to update the DFIRM for the Homer Spit. This project included 8 miles of revised coastal hazard analysis that included collection of storm surge data (coastal hydrology) and the analysis of overland wave height (coastal hydraulics), in addition to computing wave run-up. The new Flood Insurance Rate Maps (FIRMs) became effective November 6, 2013.

The Homer coastal area was also part of Coastal Physical Map Revision of the Kenai Peninsula Borough

## Coastal Study Scope

Specific to the City of Homer, the scope of work of the Kenai Peninsula Borough Risk MAP Study included:

- A detailed coastal flood hazard analysis including the collection of storm surge (coastal hydrology) and overland wave height analysis (coastal hydraulics) near Beluga Lake and Beluga Slough
- Preparation of a regulatory Flood Insurance Study (FIS) Report document to the Community. A FIS is a book that contains information regarding flooding in a community and is developed in conjunction with the FIRM. The FIS, also known as a flood elevation study, frequently contains a narrative of the flood history of a community and discusses the engineering methods used to develop the FIRM. The study also contains flood profiles for studied flooding sources and can be used to determine Base Flood Elevations for some areas.
- Preparation of a regulatory Flood Insurance Rate Map (FIRM) map for all panels within the Community which identifies the Community's flood zones, base flood elevations, and floodplain boundaries. This map is used to determine where the purchase of flood insurance is required for properties with federally-backed mortgages. The preliminary FIS and DFIRM's are scheduled to be released in Winter/Spring 2016.
- All of the above datasets will be in the in the North American Vertical Datum of 1988.
- The State and FEMA will provide guidance, feedback, coordination and technical support throughout the Risk MAP Project Life Cycle.

## Status of Homer Project

FEMA, State, and Local stakeholders participated in a Risk MAP Discovery Meeting held March 2, 2011 where community concerns were identified. These concerns were captured in the Risk MAP Discovery Report and delivered to the City of Homer. After the Discovery Meeting, community concerns were researched and analyzed, in order to develop a scope of work that includes multi-hazard risk assessment products and updates to the communities' regulatory flood maps based on community-identified resilience needs.

The flood study has since been completed and the new Flood Insurance Study and Flood Insurance Rate Maps became effective on October 20, 2016.
FEMA developed a multi-hazard Risk Report for the Kenai Peninsula Borough as part of the ongoing Risk

MAP study. Risk assessments have been completed for tsunami, dam failure, erosion, and flood hazards and have been compiled into a draft Risk Report. The State Risk MAP Coordinator sent the Risk Report out for review on October 6, 2016 and requested comments back by October 28, 2016.

On August 14, 2017, FEMA and the State held a webinar to review the data and results of the Risk Report.

Following this, the State and FEMA conducted a Resilience Workshop in the City of Homer on August 24, 2017. During the Resilience Workshop, community resilience needs, priorities and priority actions were identified. State and federal partners will address the priority actions and apprize local residents of accomplishments.

The table below illustrates project status and includes major milestones with dates:

**Table 13: Homer Project Status**

| Activity | Actual or Projected End Date |
|---|---|
| Homer Discovery Interview | January 25, 2011 |
| Homer Discovery Meeting | March 2, 2011 |
| Discovery Report | May 2011 |
| Flood Study Kick-Off Meeting | July 23-26, 2012 |
| Draft Maps Released/ Flood Risk Review Meeting | August 27-28, 2013 |
| Preliminary DFIRM/FIS Release | June 13, 2014 |
| Consultation Coordination Officers (CCO) Meeting | September 9-11, 2014 |
| Public Meeting/Workshop | September 9-11, 2014 |
| 90-day Appeal Period Start Date | 1st: January 28, 2015; 2nd: August 12, 2015 |
| 90-day Appeal Period End Date | 1st: April 28, 2015; 2nd: November 10, 2015 |
| Letter of Final Determination Issued | April 20, 2016 |
| Draft Multi-Hazard Risk Report | October 6, 2016 |
| Maps and FIS Become Effective | October 20, 2016 |
| Risk MAP Resilience Workshop | August 22-24, 2017 |
| Delivery of Final Risk Report and Risk Assessment Database | January 2018 |

# City and Borough of Juneau

In 2013, a legacy Map Modernization study was completed to develop DFIRMs for coastal and riverine areas within the City and Borough of Juneau (CBJ). These maps became effective August 19, 2013.

FEMA and the State of Alaska are currently conducting a Risk MAP Study in the CBJ that began in late 2013.

## Project Scope

The table below outlines the engineering work scoped for the City and Borough of Juneau.

**Table 14: Juneau Project Scope**

| Stream Name | Riverine or Coastal | Modeling Type (ZONE) | Stream Length |
|---|---|---|---|
| Duck Creek | Riverine | Detailed (Zone AE) | 3 miles |
| Lemon Creek | Riverine | Detailed (Zone AE) | 2 miles |
| Jordan Creek | Riverine | Detailed (Zone AE) | 3 miles |
| Unnamed Tributary to Duck Creek | Riverine | Detailed (Zone AE) | 0.25 miles |
| East Fork Duck Creek | Riverine | Detailed (Zone AE) | 1 mile |
| Gold Creek | Riverine | Approximate with structures (Zone A) | 2 miles |
| Auke Lake | Riverine | Approximate with structures (Zone A) | 1 mile |
| Auke Bay | Coastal | Detailed Redelineation (Zone VE) | 15 miles |
| Douglas Harbor | Coastal | Detailed Redelineation (Zone VE) | 4 miles |
| Tee Harbor | Coastal | New Coastal Study (Zone V or VE) | 3 miles |

The map on page 69 illustrates the project scope locations.

## Status of City and Borough of Juneau Project

As a result of comments received by FEMA during the first 90-day appeal period, Revised Preliminary Flood Insurance Rate Maps (FIRMs) were developed and released on November 30, 2018. The proposed flood hazard determination notice for CBJ was published in the Federal Register in June 2019. FEMA provided a second 90-day appeal period for the Revised Preliminary FIRMs, beginning with the second newspaper publication on July 24, 2019.

During and immediately after the end of the 90-day appeal period for the revised preliminary products, FEMA will work with CBJ to resolve any comments/appeals the community may have, and acknowledgement and resolution letters will be provided. A second Public Open House meeting will be held on August 28, 2019 to educate CBJ residents of the revised preliminary map changes.

### Recent Activity

The final mapping products have been finalized and Quality Reviews are complete. The Letter of Final BFE Determinations (LFD) was issued on March 18, 2020. An LFD is a letter FEMA sends to the Chief Executive Officer of a community stating that a new or updated FIRM or DFIRM will become effective in six months. A draft Multi-Hazard Risk Report was developed for the Juneau area as part of the ongoing Risk MAP study. The Risk Report includes a risk assessment of avalanche, earthquake, flooding, landslide, tsunami, volcano ash fall, and wildfire. Hazus, FEMA's loss estimation software, was used to assess earthquake and flood hazards. A Resilience Workshop, the date yet to be determined, will be held to discuss the results and risk reduction strategies.

The FIRMs and FIS became effective on September 18, 2020. Effective maps are available for download on FEMA's Flood Map Service Center website (https://msc.fema.gov/portal/advanceSearch). Community officials received in the mail the Revalidation Letter that lists previously issued Letters of Map Change (LOMCs) that have been reaffirmed for the new FIRM. The Revalidation Letter became effective one day after the publication of a community's new or revised final FIRM.

The table below illustrates project status and includes major milestones with dates:

**Table 15: Juneau Project Status**

| Activity | Actual or Projected End Date |
|---|---|
| City and Borough of Juneau Discovery Interview | January 26-28, 2011 |
| City and Borough of Juneau Discovery Meeting | September 26, 2013 |
| Flood Study Kick-Off Call | August 17, 2016 |
| Draft Workmap Release | May 18, 2016 |
| Flood Risk Review Meeting | August 30, 2016 |
| Preliminary DFIRM/FIS Release | August 25, 2017 |
| Consultation Coordination Officers (CCO) Meeting | January 9, 2018 |
| Public Meeting/Workshop | April 4, 2018 |
| 1st Appeal Period Starts | April 11, 2018 |
| 1st Appeal Period Ends | July 9, 2018 |
| Revised Preliminary DFIRM/FIS Release | November 30, 2018 |
| Draft Multi-Hazard Risk Report | January 14, 2019 |
| 2nd Appeal Period Starts | July 24, 2019 |
| 2nd Appeal Period Ends | October 22, 2019 |
| Risk MAP Resilience Workshop | To Be Determined* |
| Delivery of Final Risk Report and Risk Assessment Database | September 16, 2019 |
| Letter of Final Determination | March 18, 2020 |
| Maps and FIS became Effective | September 18, 2020 |

**All projected dates are subject to revision as the project progresses*

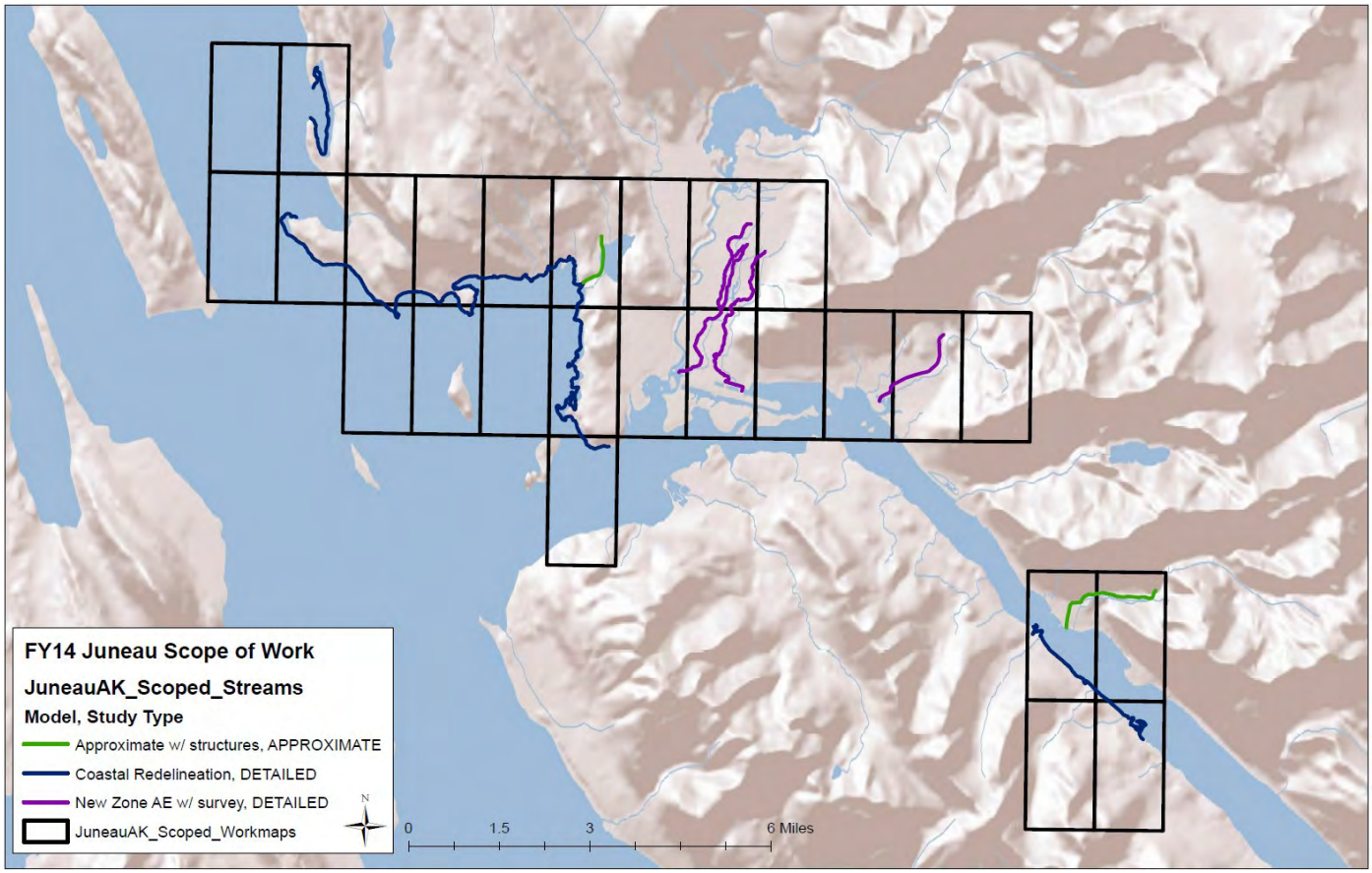



**Figure 26: Map of City and Borough of Juneau Risk MAP Study Scope**

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# Kenai Peninsula Borough

## 2020 Kenai River Physical Map Revision

In 2017, through a partnership with the U.S. Army Corps of Engineers Alaska District, riverine cross-sections and high-water marks were surveyed to support a new flood study along the inland portions of the Kenai River. In conjunction with this work, FEMA leveraged flood study work done by the National Weather Service at the request of the Borough to update the Kenai River.

## Flood Study Scope of Work

The scope of work of the Kenai River Flood Study includes (see also map below):

### U.S. Army Corps of Engineers, Alaska District

- 1-D detailed analysis for 47 miles, outlet of Skilak Lake to mouth of Kenai River
- Multi-frequency analysis (10%, 25%, 50%, 1% and 0.2%)
- Water surface elevation and depth grids • 1-ft increment inundation (for gages)

### FEMA Risk MAP

- Floodway modeling and mapping

### National Weather Service

- Calibrated model with 1995 and 2012 flood events

**Figure 27: Map of Kenai River Flood Study Project Scope**


## Study History

On May 1, 2020, a Flood Study Kick-off Meeting with FEMA, State and Local stakeholders took place to discuss the project scope, engineering approaches, and discuss the data collection and modeling completed to date.

Once hydraulic and hydrologic modeling, floodway analysis, and draft modeling was complete, FEMA shared the draft maps with the Borough and held a Flood Risk Review (FRR) meeting took place on March 23, 2022. During the FRR meeting, FEMA and its mapping contractors discussed the Risk MAP process, the National Flood Insurance Program, study progress and engineering methodologies, impacts to the Special Flood Hazard Area, insurance rating changes, and how to review the draft mapping updates. In addition, the Borough expressed a desire to update the six (6) Zone A streams that have their confluence with the Kenai River with new Zone A analysis. The modeling of the tributaries began in early May 2022 and finished in late June 2022. The Revised Draft Maps were shared with the Borough on July 27, 2022 via e-mail. The Preliminary mapping products for the Kenai Peninsula Borough were released on January 31, 2023. On March 30, 2023, FEMA held a virtual Consultation Coordination Officers (CCO) Meeting with the Kenai Peninsula Borough to present the Preliminary products to the community officials. At the CCO meeting, a discussion was held on project updates, the regulatory process (appeal period, Letter of Final Determination, etc.), and how FEMA can support the Kenai Peninsula Borough's efforts regarding the outreach to the public about these maps.

On June 22, 2023, FEMA held an in-person Open House/Public Meeting with the Kenai Peninsula Borough to share the updated mapping and provide information regarding the regulatory and insurance implications of the new floodplain delineation with the public. Subject matter experts were also on hand to answer questions from the community members. A virtual Story Map was developed as an online resource for the public. Via the virtual Story Map, property owners and community members can learn about the flood mapping process, what the changes mean for them, and information about the National Flood Insurance Program (NFIP). After the CCO and Open House/Public Meeting, we began preparing for the statutory 90-day appeal period. Before the appeal period starts, the Flood Hazard Determinations (FHDs) must be published in the Federal Register. The FHD published in the Federal Register on July 31, 2023. Unfortunately, there was an error discovered with a mailing address in the published FHD. This address correction required the FHD to be corrected and re-published in the Federal Register. The Correction Notice posted in the Federal Register on August 25, 2023. Due to this, the start of the appeal period was delayed by approximately 30 days and now is tentatively scheduled to start on September 27, 2023, and end on December 26, 2023.

The statutory 90-day appeal period for the Kenai River Physical Map Revision (PMR) began on October 11, 2023, and ended on January 9, 2024.

## Recent Activity

The Letter of Final Determination (LFD) was issued on August 28, 2024. An LFD is a letter FEMA sends to the Chief Executive Officer of a community stating that a new or updated FIRM or DFIRM will become effective in six months. The letter also notifies each affected flood-prone community participating in the National Flood Insurance Program (NFIP) that it must adopt a compliant floodplain management ordinance by the maps' effective date to remain participants in good standing. Not doing so will lead to suspension from the NFIP.

## Next Steps

The maps and FIS will become effective on February 28, 2025, six months following the issuance of the LFD. Around this date, your community officials will receive in the mail the Revalidation Letter that lists

previously issued Letters of Map Change (LOMC) that have been reaffirmed for the new FIRM. The Revalidation Letter becomes effective one day after the publication of a community's new or revised final FIRM. The Revalidation Letter does not list LOMCs that have been incorporated into the revised panel, LOMCs that are superseded by new or revised mapping, or LOMCs that are no longer valid. While the Summary of Map Actions (SOMA) is a preliminary assessment of which LOMCs may still be valid after the new maps are issued, the Revalidation Letter is the final, effective determination of the LOMCs which remain valid. The SOMA and the Revalidation Letter are meant to assist community officials in the maintenance of the community's FIRM.

The table below illustrates project status and includes major milestones with dates:

**Table 16: Kenai River Flood Study Project Status**

| Activity | Actual or Projected End Date |
|---|---|
| Flood Study Kick-Off/Scoping Meeting | May 1, 2020 |
| Draft Map Release | January 31, 2022 |
| Flood Risk Review (FRR) Meeting | March 23, 2022 |
| Revised Draft Map Release | July 27, 2022 |
| Preliminary DFIRM/FIS Release | January 31, 2023 |
| Consultation Coordination Officers (CCO) Meeting | March 30 2023 |
| Public Meeting/Workshop | June 22, 2023 |
| Appeal Period Starts | October 11, 2023 |
| Appeal Period Ends | January 9, 2024 |
| Letter of Final Determination | August 28, 2024 |
| Maps and FIS become Effective | February 28, 2025 |

**All projected dates are subject to revision as the project progresses*

## 2011- 2016 Coastal Flood Study

FEMA completed a coastal Risk MAP Study in the Kenai Peninsula Borough that began in 2011. The new Flood Insurance Study and Flood Insurance Rate Maps became effective on October 20, 2016.

### Coastal Flood Study Scope of Work

The scope of work of the Kenai Peninsula Borough Risk MAP Study included:

- 28 miles of detailed coastal studies, as well 15 miles of riverine studies in the following locations: Cooper Creek – 8 miles of detailed study; Ninilchik – 2 miles of detailed study; Anchor Point – 5 miles of detailed study
- Preparation of a regulatory Flood Insurance Study (FIS) Report document to the Community.
- Preparation of a regulatory Flood Insurance Rate Map (FIRM) for all panels within the Community which identifies the Community's flood zones, base flood elevations, and floodplain boundaries.

- LiDAR data was collected in 2011 and delivered to the community.
- All of the above datasets will be in the North American Vertical Datum of 1988.
- A multi-hazard Risk Report for the Kenai Peninsula Borough as part of the ongoing Risk MAP study. Risk assessments were completed for tsunami, dam failure, erosion, and flood hazards and have been compiled into a draft Risk Report.
- Three Resilience Workshops held in the Borough on August 22, 23, and 24, 2017. During the Resilience Workshops, community resilience needs, priorities and priority actions were identified.

# Ketchikan Gateway Borough

FEMA and the State of Alaska are conducting a coastal Risk MAP Study in the Ketchikan Gateway Borough that began in 2013 and was completed in 2024. The Flood Insurance Rate Maps and Flood Insurance Study became effective on April 11, 2024.

## Scope of Work

The scope of work of the Ketchikan Gateway Borough Risk MAP Study included (see also the map on page 79:

- A detailed coastal flood hazard analysis including the collection of storm surge (coastal hydrology) and overland wave height analysis (coastal hydraulics), as well as floodplain boundaries for 1-percent and 0.2-percent-annual-chance (100- and 500-year) flood events. Updated detailed modeling will be completed for 0.99 miles on Hoadley Creek, 1.2 miles of Ketchikan Creek, and 1 mile on Schoenbar Creek. Redelineation using new LiDAR will be completed for 0.08 miles of Carlanna Creek. The draft maps will be completed in Fall 2015.
- Preparation of a regulatory Flood Insurance Study (FIS) Report document to the Community. A FIS is a book that contains information regarding flooding in a community and is developed in conjunction with the FIRM. The FIS, also known as a flood elevation study, frequently contains a narrative of the flood history of a community and discusses the engineering methods used to develop the FIRM. The study also contains flood profiles for studied flooding sources and can be used to determine Base Flood Elevations for some areas.
- Preparation of a regulatory Flood Insurance Rate Map (FIRM) map for all panels within the Community which identifies the Community's flood zones, base flood elevations, and floodplain boundaries. This map is used to determine where the purchase of flood insurance is required for properties with federally-backed mortgages. The preliminary FIS and DFIRM's are scheduled to be released in Winter/Spring 2016.
- Collection of LiDAR data in Summer of 2014. This data will be delivered to the community in the Fall 2014.
- All of the above datasets will be in the in the North American Vertical Datum of 1988.
- The State and FEMA will provide guidance, feedback, coordination and technical support throughout the Risk MAP Project Life Cycle.

## Ketchikan Gateway Borough Coastal Flood Study History

FEMA, State, and Local stakeholders participated in a Risk MAP Discovery Meeting held August 7, 2013 where community hazard concerns were identified. These concerns were captured in the Risk MAP Discovery Report and delivered to the communities in the watershed. After the Discovery Meeting, community hazard concerns were researched and analyzed, in order to develop a scope of work that includes multi-hazard risk assessment products and updates to the communities' regulatory flood maps based on community-identified resilience needs.

Draft floodplain maps were released on March 7, 2016. These maps show the proposed riverine and coastal floodplains.

The Flood Risk Review (FRR) meeting was held on August 4, 2016 and attended by representatives of Ketchikan Gateway Borough, City of Ketchikan, Village of Saxman, FEMA, State of Alaska, and FEMA's mapping contractor. Draft floodplain maps and study methods were reviewed. The 30-day comment period following the meeting ended on September 4, 2016. The list below summarizes the feedback received and how the comments are being addressed.

1. The Borough provided a hardcopy of the Whipple Creek Floodplain Study which was performed by the U.S. Army Corps of Engineers. This study may be incorporated into the regulatory floodplain mapping as a Letter of Map Revision (LOMR) at the community's request.
2. The Borough requested that a panel be added to the regulatory maps to include coastal flood hazard areas at the end of North Tongass Highway. The requested panel is being added to the maps.
3. It was noted at the FRR meeting, that the areas that were not included in the coastal or riverine analysis were mapped as unshaded Zone X. These areas may have been regulated as Zone D.
4. FEMA and its mapping contractor are reviewing these areas to determine the appropriate flood zone. The floodplain for Hoadley Creek at Baranof Avenue is being updated. The Borough had questions regarding whether the divided flow from the culvert would impact the building on the South side of Baranof Avenue. It was noted it could diverge along Carlanna Lake Road STARR has evaluated the area and is revising the floodplain in the vicinity of the building. Flood hazards along Carlanna Lake Road are not being delineated.
5. Several attendees at the FRR meeting questioned the vertical datum conversion. FEMA's mapping contractor confirmed that the correct conversion is being used.

The project team released preliminary mapping products on May 5, 2017 including preliminary FIRM panels, preliminary FIS, and a preliminary Summary of Map Actions (SOMA). These products were developed with consideration of community comments noted during the Flood Risk Review meeting on August 4, 2016.

A Consultation Coordination Officers (CCO) meeting was held ton July 18, 2017 at the Ketchikan Gateway Borough offices to present the preliminary FIRM and data to the community officials. During this meeting, differences between the new and the effective FIRM were presented, along with an overview of the appeals and map adoption processes.

A public meeting was held in Ketchikan on January 25, 2018. The formal appeals and comment period began on February 2, 2018 and ended on May 2, 2018. The appeal period is the time when comments and appeals, with supporting technical data, may be submitted for review for possible incorporation into the maps. Ketchikan Gateway Borough submitted a package of comments regarding the validity of the Preliminary FIRM. The comments submitted concern the study methods, the topographic data used in the study, the delineation of the Special Flood Hazard Areas (SFHAs), and the BFEs. Ketchikan Gateway Borough requested re-evaluation of properties along the coast, an extension of the appeals period to one

year, an estimate of flood insurance premiums for properties within the SFHA, and verification of the SFHA and BFEs shown on the preliminary FIRM.

FEMA and their community engagement contractor, Resilience Action Partners, worked with the State of Alaska to develop a Story Map as an online resource to obtain information similar to what is normally available at the in-person Public Open House. To access the Story Map, please visit: https://arcg.is/0D55im Via the Story Map, property owners and community residents will be able to learn about the flood mapping process, what the changes mean for them, and gain information about the National Flood Insurance Program (NFIP). Residents may also find direct contact information should they need additional support. The Story Map has been live since May 2021 and will continue to be available as an online resource to provide information to the community throughout the entire mapping process.

FEMA's Regional Engineer gave presentations on the Ketchikan Gateway Borough Risk MAP project for the Ketchikan Borough Assembly on September 6, 2022 and for the Ketchikan Planning Commission on October 11,2023. The presentations included a brief overview of the history and scope of the project, a discussion about changes made based on the community's comments regarding the preliminary products, an overview of the planned Public Open House Meeting and available outreach materials, and a discussion on the next steps for the project.

A second statutory 90-day appeal period for the study began on November 16, 2022 and ended on February 14, 2023. Since no appeals or comments were received, the project team started finalizing the FIRMs and FIS report.

The Letter of Final BFE Determinations (LFD) was issued on October 11, 2023. An LFD is a letter FEMA sends to the Chief Executive Officer of a community initiating the six-month compliance period, stating that a new or updated FIRM and FIS will become effective in six months.

In early February 2024, the draft Revalidation Letter was submitted for review. The Revalidation Letter identifies effective Letters of Map Change (LOMC) [i.e., Letters of Map Amendment (LOMAs) and Letters of Map Revision-based on Fill (LOMR-Fs)] for properties and/or structures located in the community that will still be valid after the new maps become effective. The Revalidation Letter was approved in mid-February 2024 and issued on April 4, 2024.

Each time FEMA provides a community with new or revised flood hazard data, the community must adopt the new or revised FIS and associated FIRMs (by title and effective date) and assure the community's regulations are compliant with the National Flood Insurance Program (NFIP) and applicable state regulations. In some cases, communities may have to adopt updated regulations or additional floodplain management requirements if a new type of flood hazard data is provided, such as a new flood zone (e.g., going from a Zone A without Base Flood Elevations (BFEs) to a Zone AE with BFEs or adding a Zone VE – the coastal high hazard area), or with the addition of a regulatory floodway designation.

The table below illustrates project status and includes major milestones with dates:

**Table 17: Ketchikan Gateway Borough Project Status**

| Activity | Actual or Projected End Date |
|---|---|
| Ketchikan Gateway Borough Discovery Interview | June 17, 2013 |
| Ketchikan Gateway Borough Discovery Meeting | August 7, 2013 |
| Base Map Acquisition | February 2, 2014 |
| Discovery Report | Summer 2014 |
| Perform Field Survey | August 31, 2014 |
| Develop Topographic Data | November 30, 2014 |
| Hydrologic Analysis | December 31, 2014 |
| Perform Coastal Analysis/Hydraulic Analysis | July 17, 2015 |
| Perform Floodplain Mapping | September 2015 |
| Develop DFRIM Database | September 25, 2015 |
| Draft Work Maps Released | March 7, 2016 |
| Flood Risk Review Meeting | August 4, 2016 |
| Preliminary DFIRM/FIS Release | May 5, 2017 |
| Consultation Coordination Officers (CCO) Meeting | July 18, 2017 |
| Public Meeting/Workshop | January 25, 2018 |
| 1st 90-Day Appeal Period Starts | February 2, 2018 |
| 1st 90-Day Appeal Period Ends | May 2, 2018 |
| Draft Multi-Hazard Risk Report | November 2018 |
| Comment Resolution Meeting | July 24, 2019 |
| Revised Preliminary FIRM/FIS Release | August 28, 2020* |
| 2nd Consultation Coordination Officers (CCO) Meeting (Webinar) | December 8, 2020 |
| Story Map Release | May 3, 2021 |
| Ketchikan Borough Assembly Presentation | September 6, 2022 |
| Ketchikan Planning Commission Presentation | October 11, 2022 |
| 2nd Public Open House | November 2, 2022 |
| 2nd 90-Day Appeal Period Starts | November 16, 2022 |
| 2nd 90-Day Appeal Period Ends | February 14, 2023 |
| Letter of Final Determination | October 11, 2023 |
| Revalidation Letter Distribution | April 4, 2024 |
| Maps and FIS become Effective | April 11, 2024 |
| Revalidation Letter goes into effect | April 12, 2024 |

**All projected dates are subject to revision as the project progresses*

**Figure 28: Map of Ketchikan Gateway Borough Coastal Study Scope**

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## City of Kotzebue

A Risk MAP Discovery meeting was held February 23, 2011 in order to gain a clearer understanding of the flood hazard mapping, mitigation planning, and communication needs of the City of Kotzebue. The City's desired study areas are listed below.

**Table 18: Desired Risk MAP Study Areas for the City of Kotzebue**

| Priority | Study Area | Study Length | Location Description | Study Type |
|---|---|---|---|---|
| 1 | Kotzebue Sound | 2.64 | Shoreline study within city limits | Coastal Detailed |
| 2 | Kotzebue Lagoon | 6.76 | Along the Shoreline of the Kotzebue lagoon | Detailed |
| 3 | Swan Lake | 0.59 | Shoreline study within city limits | Detailed |
| 4 | Ponding Areas | <1 | Low areas within the city limits subject to flooding from ice thaw | Approximate |

After reviewing the mapping needs identified during Discovery and current funding availability, FEMA informed the City that due to federal funding constraints, a new flood study would not be initiated this year; however the area will remain a high priority for a new study when funds become available.

Products that would be provided to Kotzebue through its Risk MAP project include:

- Available topographic data as well as new data in the future, when it becomes available
- Updated non regulatory digital flood hazard data
- Areas of Mitigation Areas of Interest findings and recommendations based on best available data
- Non-regulatory Risk MAP database containing digital project data
- Non-regulatory Risk MAP map and report depicting risk assessment results

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## City of Kwethluk

The Risk MAP process began for the City of Kwethluk in the summer of 2016.

The Alaska State Risk MAP Coordinator, FEMA's Risk Analyst and the Alaska State Mitigation Planner travelled to Kwethluk on June 16, 2016 to conduct a Risk MAP Discovery Meeting with City of Kwethluk staff and community members. The State and FEMA discussed the purpose of the Risk MAP Program and how it could benefit the City of Kwethluk.

Kwethluk's Local Hazard Mitigation Plan (LHMP) was completed in 2009, so the plan has expired. The City is considering an update to the plan in the near future. FEMA and the State discussed how the Risk MAP process could inform the next update of the LHMP. The community identified flood, fire, permafrost and erosion hazards on a map. This information was developed into a Discovery map, which accompanied the Discovery report, presented to the community in January 2017.

**Figure 29: Kwethluk flood, 2012**

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# Matanuska-Susitna Borough

FEMA and the State of Alaska are conducting a coastal Risk MAP Study in the Ketchikan Gateway Borough that began in 2013.

## Scope of Work

The scope of work of the Matanuska-Susitna Borough Risk MAP Study includes (see also the map below):

Detailed hydrology and hydraulic modeling to include 71.9 miles of riverine study, perform approximate riverine analysis for 316.6 miles, and delineate 15.4 miles of existing areas. Floodplain boundaries will be updated for the 1-percent and 0.2-percent-annual-chance (100- and 500-year) flood events. The rivers to be updated include:

- Updated detailed modeling (Zone AE) will be completed for:
  - Little Susitna River (including Split Flows 1-3) = 39.2 miles
  - Willow Creek = 13.3 miles
  - Willow Creek Tributary = 7.1 miles

- Limited detail modeling (Zone A with structures) will be completed for:
  - Wasilla Creek = 10.7 miles

- Updated Approximate Studies (Zone A) will be completed for:
  - Upper Matanuska River = 14 miles
  - Point MacKenzie = 2 miles – roughly from Walsop Road to 2 miles downstream of Walsop Road.
  - Various Zone A = 289.9 miles

- Redelineation of Effective Detailed Studies (Zone AE) will be completed for:
  - Deception Creek and Tributaries 1-3 = 15.4 miles

- US Army Corps of Engineers (USACE) Studies (Leverage - Zone AE) will also be incorporated to include:
  - Matanuska River = 3.9 miles
  - Knik River = 2.7 miles
  - Bodenburg Creek = 5.7 miles

## Status of Matanuska-Susitna Borough Risk MAP Project

FEMA, State, and Local stakeholders participated in a Risk MAP Discovery Meeting held April 23, 2013 where community hazard concerns were identified. These concerns were captured in the Risk MAP

Discovery Report and delivered to the communities in the watershed. After the Discovery Meeting, community concerns were researched and analyzed, in order to develop a scope of work that includes multi -hazard risk assessment products and updates to the communities' regulatory flood maps based on community-identified resilience needs.

Preliminary products (DFIRM panels & FIS report) and data (DFIRM data shapefiles) were mailed on Friday, August 19, 2016 to Matanuska-Susitna Borough and the State of Alaska. The preliminary mailing included: hard copies of preliminary DFIRM panels and FIS report; and digital copies of DFIRM data GIS shapefiles.

The Consultation Coordination Officers (CCO) Meeting was held on January 4, 2017. The CCO meeting is an opportunity for FEMA/State/STARR and Matanuska-Susitna Borough local officials to review the flood data that has been updated, talk through the regulatory process (appeal period, Letter of Final Determination, etc.), and discuss how the Borough would like to proceed with outreach in order to schedule public meeting(s) regarding the preliminary DFIRM maps.

Four (4) public meetings were held on March 15 and 16, 2017 in the communities of Willow, Meadow Lakes, Wasilla and Palmer. Stakeholders and the public were invited to attend the meetings, which had subject matter experts from FEMA, FEMA's mapping contractor , State of Alaska, and Matanuska-Susitna Borough on hand to discuss how the flood maps were developed, provide landowners with the flood designation for their property, and answer questions on floodplain regulations and insurance rates.

The appeal period for the Matanuska-Susitna Borough Flood Risk study Began on October 27, 2017 and ended January 25, 2018. Following the 90-day appeals period, comment resolution letters, including "before and after" maps of proposed revisions, were mailed to the Matanuska-Susitna Borough on May 10, 2018. Revised preliminary products, updated to reflect the proposed revisions, were distributed to the Borough on August 24, 2018. There was a 30-day comment period following distribution of the revised preliminary products.

The Final Flood Hazard Determinations were posted in the Federal Register on May 20, 2019. The Letter of Final BFE Determinations (LFD) was issued on March 27, 2019. An LFD is a letter FEMA sends to the Chief Executive Officer of a community stating that a new or updated Flood Insurance Rate Map (FIRM) or Digital FIRM will become effective in six months. The letter also notifies each affected flood-prone community participating in the National Flood Insurance Program (NFIP) that it must adopt a compliant floodplain management ordinance by the maps effective date to remain participants in good standing.

## Recent Activity

The FIRMs and Flood Insurance Study (FIS) became effective on September 27, 2019, six months after the LFD was issued. Community officials were sent the Revalidation Letter that lists previously issued Letters of Map Change (LOMC) that have been reaffirmed for the new FIRM. The Revalidation Letter became effective one day after the publication of the community's revised final
FIRM. The Revalidation Letter does not list LOMCs that have been incorporated into the revised panel,

LOMCs that are superseded by new or revised mapping, or LOMCs that are no longer valid. While the Summary of Map Actions (SOMA) is a preliminary assessment of which LOMCs may still be valid after the new maps are issued, the Revalidation Letter is the final, effective determination of the LOMCs which remain valid. The SOMA and the Revalidation Letter are meant to assist community officials in the maintenance of the community's FIRM.

FEMA funded its contractor, STARR II, to develop a multi-hazard Risk Report and the State of Alaska has prepared a Resilience Dashboard for the Matanuska-Susitna Borough as part of the ongoing Risk MAP study. The Risk Report includes a risk assessment of earthquake, flood, and landslide hazards. Hazus, FEMA's loss estimation software, was used to assess the potential building losses from earthquake and flood hazards. The draft multi-hazard Risk Report and Resilience Dashboard were provided to MatSu Borough for comment on January 10, 2017. At the request of Matanuska-Susitna Borough and the State of Alaska, the comments due date has been extended to allow enough time for a thorough review of the draft Risk Report. Once all review comments on the draft Risk Report and Resilience Dashboard have been addressed, a Resilience Workshop will be held to discuss the results of the risk assessments and risk reduction strategies.

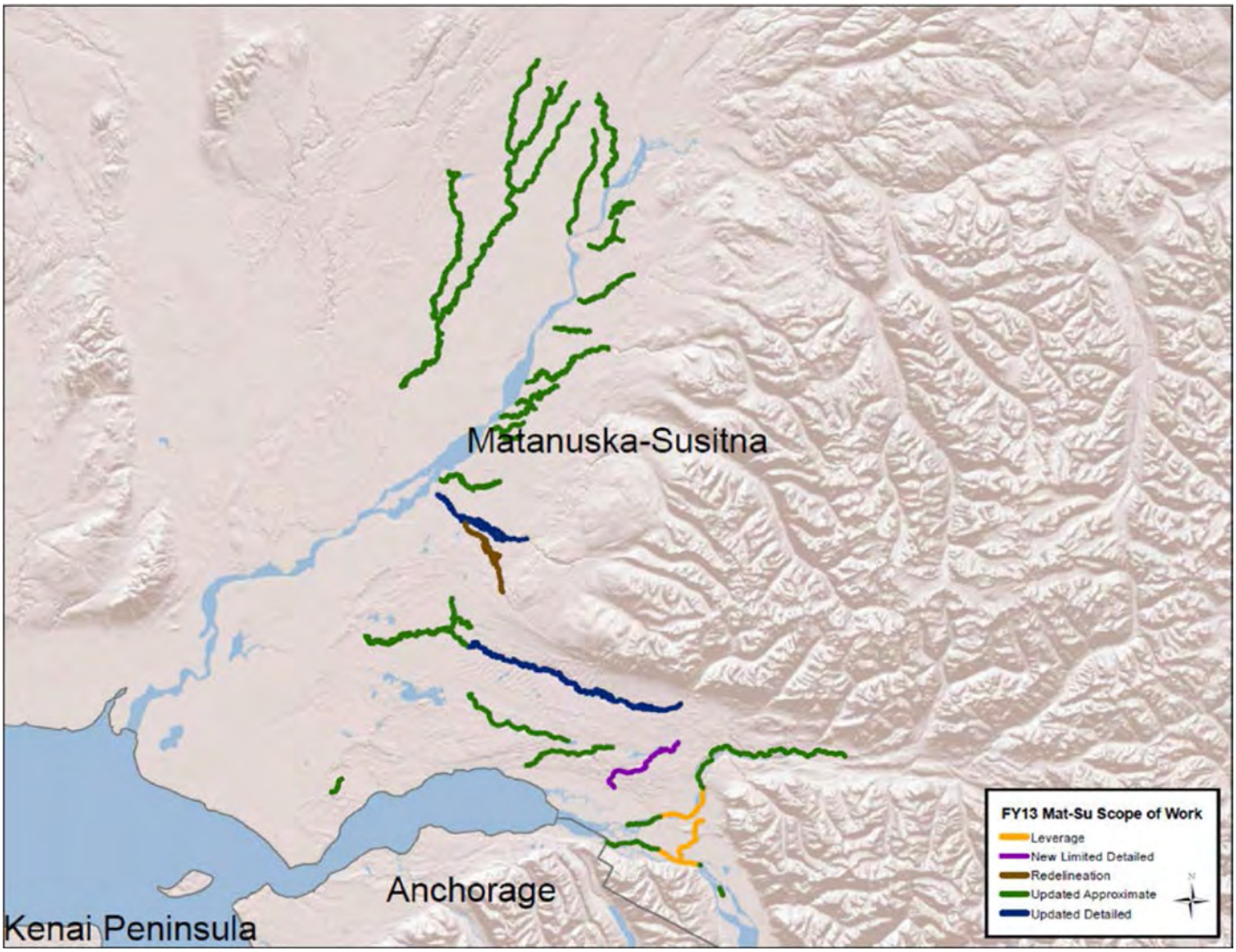
The following table illustrates project status and includes major milestones with dates:

**Table 19: Matanuska-Susitna Borough Project Status**

| Activity | Projected Completion Date* |
|---|---|
| Matanuska-Susitna Discovery Interview | March 11, 2013 |
| Matanuska-Susitna Discovery Meeting | April 23, 2013 |
| Flood Study Kick-Off Meeting | December 13, 2013 |
| Draft Workmaps Released | August 28, 2015 |
| Flood Risk Review Meeting | January 20, 2016 |
| Preliminary DFIRM/FIS Released | August 19, 2016 |
| Consultation Coordination Officers (CCO) Meeting | January 4, 2017 |
| Public Meeting/Workshop | March 15 - 16, 2017 |
| Draft Multi-Hazard Risk Report | January 10, 2017 |
| 90-Day Appeal Period Starts | October 27, 2017 |
| 90-Day Appeal Period Ends | January 25, 2018 |
| Revised Preliminary DFIRM/FIS Release | August 24, 2018 |
| Letter of Final Determination | March 27, 2019 |
| Risk MAP Resilience Workshop | To Be Determined* |
| Delivery of Final Risk Report and Risk Assessment Database | August 14, 2019 |
| Maps and FIS become Effective | September 27, 2019 |

**All projected dates are subject to revision as the project progresses*

**Figure 30: Map of Matanuska-Susitna Borough Project Scope**



# City and Borough of Sitka

FEMA and the State of Alaska are conducting a coastal Risk MAP Study in the City and Borough of Sitka that began in 2013.

## Study Scope

The scope of work of the City and Borough of Sitka Risk MAP Study includes (see also the map on page 58):

- A detailed coastal flood hazard analysis including the collection of storm surge (coastal hydrology) and overland wave height analysis (coastal hydraulics), as well as floodplain boundaries for 1-percent and 0.2-percent-annual-chance (100- and 500-year) flood events. 0.67 miles of Swan Lake will be updated using approximate modeling and 1 mile of Indian River will be redelineated using new LiDAR. The draft maps will be completed in Spring/Summer 2015.
- Preparation of a regulatory Flood Insurance Study (FIS) Report document to the Community. A FIS is a book that contains information regarding flooding in a community and is developed in conjunction with the FIRM. The FIS, also known as a flood elevation study, frequently contains a narrative of the flood history of a community and discusses the engineering methods used to develop the FIRM. The study also contains flood profiles for studied flooding sources and can be used to determine Base Flood Elevations for some areas.
- Preparation of a regulatory Flood Insurance Rate Map (FIRM) map for all panels within the Community which identifies the Community's flood zones, base flood elevations, and floodplain boundaries. This map is used to determine where the purchase of flood insurance is required for properties with federally-backed mortgages. The preliminary FIS and DFIRM's are scheduled to be released in Winter/Spring 2016.
- Collect LiDAR in Spring/Summer of 2014. This data will be delivered to the community by Sept. 30, 2014.
- All of the above datasets will be in the in the North American Vertical Datum of 1988.
- The State and FEMA will provide guidance, feedback, coordination and technical support throughout the Risk MAP Project Life Cycle.

## Sitka Project Status

FEMA, State, and Local stakeholders participated in a Risk MAP Discovery Meeting held August 5, 2013 where community concerns were identified. These concerns were captured in the Risk MAP Discovery Report and delivered to the communities in the City and Borough of Sitka. After the Discovery Meeting, community concerns were researched and analyzed, in order to develop a scope of work that includes multi-hazard risk assessment products based on community-identified resilience needs.

FEMA funded its mapping contractor to develop a multi-hazard Risk Report for the Sitka area as part of the ongoing Risk MAP study. The Risk Report will include a risk assessment of earthquake, erosion,

flood, landslides, and tsunami hazards. Hazus, FEMA's loss estimation software, will be used to assess earthquake and flood results. Additionally, FEMA has worked with the Alaska Department of Geological and Geophysical Surveys Division (DGGS) to conduct an even more extensive study of the landslide hazards and risks in the area. Once the risk assessments are completed, they will be compiled into the Risk MAP Risk Report and a Resilience Workshop will be held to discuss the assessment results and risk reduction strategies.

On June 30, 2016, FEMA issued updated preliminary mapping for the City and Borough of Sitka. FEMA held a Consultation Coordination Officers (CCO) Meeting via a webinar on October 13 for the City and Borough of Sitka. The CCO Meeting provided information to the community about the map review process and addressed initial questions regarding the preliminary flood hazard data.

At the meeting, there was discussion about FEMA supporting the community of Sitka with an additional Open House/Public Meeting, which was held on January 25, 2017. The Public Meeting/Open House provided members of the community the opportunity to ask flood mapping and insurance questions to subject matter experts.

The 90-day appeal period began on February 27, 2017 and ended on May 28, 2017. The following appeal has been filed:

### Appeal I:

The City and Borough of Sitka Public Works Department submitted an updated Swan Lake HEC-RAS model that lowers the base flood elevation for the lake. The new HEC-RAS project incorporated a new survey performed on an existing pipe culvert in the lake vicinity. In addition to the pipe information, the survey provided more detailed information for the area where the lake could overflow into the round about where Lake Street, Halibut Point Road, and Sawmill Creek Road intersect. The result of the calculations is that the water surface elevation for the lake is at 33.1 compared to a water surface elevation of 34.4 provided by FEMA. This new lake delineation will result in a revised preliminary issuance.

Revised Preliminary issuance in this case will occur due to the following changes:

- Areas showing new or revised Base Flood Elevations (BFEs) or base flood depths;
- Areas showing new or revised Special Flood Hazard Area (SFHA) boundaries (including increases or decreases in the extent of the SFHA); and
- Areas where there is a change in SFHA zone designation

Appeal/Comment resolution letters were mailed to the City and Borough of Sitka, AK on October 9, 2017. These letters categorized each circumstance as either an appeal or comment and contained language on whether the changes proposed to FEMA justified updates to the preliminary maps. If changes were warranted, a proof panel was generated to show the update(s). The City and Borough had 30 days to ensure all previous comments have been addressed.

The Revised Preliminary DFIRM/FIS release for the City and Borough of Sitka occurred on June 27, 2018. The revised preliminary products are available for download on FEMA's Flood Map Service Center website. Following the issuance of the revised preliminary maps, the community had a 30-day review period to provide comments.

## Recent Activity

The maps and FIS became effective on August 1, 2019. The effective maps are available for download on FEMA's Flood Map Service Center website (https://msc.fema.gov/portal/advanceSearch). Community officials were mailed the Revalidation Letter that lists previously issued Letters of Map Change (LOMC) that have been reaffirmed for the new FIRM. When the maps become effective, the community is expected to have updated its floodplain ordinances to reflect this better information in order to remain participants in good standing in the National Flood Insurance Program (NFIP).

The final multi-hazard Risk Report was developed for the City and Borough of Sitka as part of the ongoing Risk MAP study, which was provided to the community on December 12, 2019. The Risk Report includes a risk assessment of earthquake, erosion, flood, landslides, and tsunami hazards. Hazus, FEMA's loss estimation software, was used to assess earthquake and flood results. Additionally, FEMA has worked with the State of Alaska Department of Geological and Geophysical Surveys Division (DGGS) to conduct an even more extensive study of the landslide hazards and risks in the area which has been integrated into the Risk MAP Risk Report.

## Next Steps

A Resilience Workshop can be held at the City and Borough of Sitka's convenience to discuss the assessment results and risk reduction strategies.

The table below illustrates project status and includes major milestones with dates:

**Table 20: Sitka Project Status**

| Activity | Actual or Projected End Date |
|---|---|
| Risk MAP Discovery Meeting | August 5, 2013 |
| Flood Risk Review (FRR) Meeting/Draft Maps | February 2, 2016 |
| Preliminary DFIRM/FIS Release | June 30, 2016 |
| Consultation Coordination Officers (CCO) Webinar | October 13, 2016 |
| Public Meeting/Open House | January 25, 2017 |
| 90-Day Appeal Period Start | February 27, 2017 |
| 90-Day Appeal Period Ends | May 28, 2017 |
| Revised Preliminary DFIRM/FIS Release | September 12, 2018 |
| Draft Multi-Hazard Risk Report | January 30, 2019 |
| Letter of Final Determination | February 1, 2019 |
| Draft Risk Assessment Database | March 15, 2019 |
| Maps and FIS become Effective | August 1, 2019 |
| Delivery of Final Report and Risk Assessment Database | December 12, 2019 |
| Risk MAP Resilience Workshop | To Be Determined* |

**All projected dates are subject to revision as the project progresses*

**Figure 31: Map of Sitka Study Scope**

# City of Seward

In 2010, FEMA initiated a Risk MAP project to develop a Physical Map Revision of the Japanese Creek Alluvial Fan. The project scope of work includes 2.5 miles of detailed study near the confluence with Lowell Creek. Because the study area includes a levee that hasn't been accredited for National Flood Insurance Program (NFIP) requirements, the project has been placed on hold until FEMA finalizes its guidance for mapping non-accredited levees.

The Seward coastal area was also part of Coastal Physical Map Revision of the Kenai Peninsula Borough (see study area identified on the map on page 64).

## Coastal Study Scope

Specific to the City of Seward, the scope of work of the Kenai Peninsula Borough Risk MAP Study includes:

- Ten miles of detailed coastal flood hazard analysis including the collection of storm surge (coastal hydrology) and overland wave height analysis (coastal hydraulics) of Resurrection Bay.
- Preparation of a regulatory Flood Insurance Study (FIS) Report document to the Community. A FIS is a book that contains information regarding flooding in a community and is developed in conjunction with the FIRM. The FIS, also known as a flood elevation study, frequently contains a narrative of the flood history of a community and discusses the engineering methods used to develop the FIRM. The study also contains flood profiles for studied flooding sources and can be used to determine Base Flood Elevations for some areas.
- Preparation of a regulatory Flood Insurance Rate Map (FIRM) map for all panels within the Community which identifies the Community's flood zones, base flood elevations, and floodplain boundaries. This map is used to determine where the purchase of flood insurance is required for properties with federally-backed mortgages. The preliminary FIS and DFIRM's are scheduled to be released in Winter/Spring 2016.
- All of the above datasets will be in the in the North American Vertical Datum of 1988.
- The State and FEMA will provide guidance, feedback, coordination and technical support throughout the Risk MAP Project Life Cycle.

## Status of Seward Project

FEMA, State, and Local stakeholders participated in a Risk MAP Discovery Meeting held March 2, 2011 where community concerns were identified. These concerns were captured in the Risk MAP Discovery Report and delivered to the communities in the Borough. After the Discovery Meeting, community concerns were researched and analyzed, in order to develop a scope of work that includes multi-hazard risk assessment products and updates to the communities' regulatory flood maps based on community-identified resilience needs.

The flood study has since been completed and the new Flood Insurance Study and Flood Insurance

Rate Maps became effective on October 20, 2016.
FEMA developed a multi-hazard Risk Report for the Kenai Peninsula Borough as part of the ongoing Risk MAP study. Risk assessments have been completed for tsunami, dam failure, erosion, and flood hazards and have been compiled into a draft Risk Report. The State Risk MAP Coordinator sent the Risk Report out for review on October 6, 2016 and requested comments back by October 28, 2016.

On August 14, 2017, FEMA and the State held a webinar to review the data and results of the Risk Report.

Following this, the State and FEMA conducted a Resilience Workshops in the City of Seward on August 22, 2017. During the Resilience Workshop, community resilience needs, priorities and priority actions were identified. State and federal partners will address the priority actions and apprize local residents of accomplishments.

The table below illustrates project status and includes major milestones with dates:

**Table 21: Seward Project Status**

| Activity | Actual or Projected End Date |
|---|---|
| Seward Discovery Interview | February 2, 2011 |
| Seward Discovery Meeting | March 2, 2011 |
| Discovery Report | May 2011 |
| Flood Study Kick-Off Meeting | July 23-26, 2012 |
| Draft Maps Released/ Flood Risk Review Meeting | August 27-28, 2013 |
| Preliminary DFIRM/FIS Release | June 13, 2014 |
| Consultation Coordination Officers (CCO) Meeting | September 9-11, 2014 |
| Public Meeting/Workshop | September 9-11, 2014 |
| 90-day Appeal Period Start Date | 1st: January 28, 2015; 2nd: August 12, 2015 |
| 90-day Appeal Period End Date | 1st: April 28, 2015; 2nd: November 10, 2015 |
| Issue Letter of Final Determination | April 20, 2016 |
| Draft Multi-Hazard Risk Report | October 6, 2016 |
| Maps and FIS Become Effective | October 20, 2016 |
| Risk MAP Resilience Workshop | August 22-24, 2017 |
| Delivery of Final Risk Report and Risk Assessment Database | January 11, 2018 |

# City of Valdez

FEMA and the State of Alaska are conducting a coastal Risk MAP Study in the City of Valdez that began in 2013.

## Scope of Work

The scope of work of the Valdez Risk MAP Study includes (see also the map below):

- A detailed coastal flood hazard analysis including the collection of storm surge (coastal hydrology) and overland wave height analysis (coastal hydraulics), as well as floodplain boundaries for 1-percent and 0.2-percent-annual-chance (100- and 500-year) flood events. A riverine analysis will also be performed to include hydrology and hydraulic modeling for 3.8 miles of detailed riverine study on Mineral Creek, 11.7 miles of detailed riverine study on Lowe River, 4.6 miles of detailed riverine study on Valdez Glacier Stream, 2.2 miles of detailed riverine study on Robe River, and 18.7 miles of approximate riverine modeling on various streams. Floodplain delineations and the Flood Insurance Study will be updated for the entire city.
- Preparation of a regulatory Flood Insurance Study (FIS) Report document to the City. A FIS is a book that contains information regarding flooding in a city and is developed in conjunction with the FIRM. The FIS, also known as a flood elevation study, frequently contains a narrative of the flood history of a city and discusses the engineering methods used to develop the FIRM. The study also contains flood profiles for studied flooding sources and can be used to determine Base Flood Elevations for some areas.
- Preparation of regulatory Flood Insurance Rate Map (FIRM) map for all panels within the City which identifies the City's flood zones, base flood elevations, and floodplain boundaries. This map is used to determine where the purchase of flood insurance is required for properties with federally-backed mortgages.
- Guidance, feedback, coordination and technical support throughout the Risk MAP Project Life Cycle.

## Valdez Project Status

FEMA, State, and Local stakeholders participated in a Risk MAP Discovery Meeting held January 24, 2011 where community concerns were identified. These concerns were captured in the Risk MAP Discovery Report and delivered to the City of Valdez. After the Discovery Meeting, the City of Valdez's concerns were researched and analyzed, in order to develop a scope of work that includes multi-hazard risk assessment products and updates to the communities' regulatory flood maps based on community-identified resilience needs.

The Valdez Riverine Draft Workmaps were released on April 30, 2015. A Flood Risk Review (FRR) Meeting was recently held Wednesday, August 12, 2015 via web-conference to discuss the draft maps

and display the updated analysis of the proposed floodplains.
FEMA's mapping contractor addressed the comments raised by the community originating from the Flood Risk Review meeting of August 2015. Subsequently, FEMA and its mapping contractor met with the community on April 12th, 2016 to review the comment resolutions agreed to move forward with producing the Preliminary Digital Flood Insurance Rate Maps (DFIRMs), which were released on September 15, 2016.

A Consultation Coordination Officers (CCO) meeting was held November 30th, 2016 in the City of Valdez to discuss the results of the project study and preliminary maps with the community officials. Also, the Levee Analysis and Mapping Procedure (LAMP) kick-off meeting was held on January 12, 2017 to introduce the production team and discuss the schedule and scope of the LAMP analysis of the Alpine Woods Levee.

A revised preliminary FIRM/FIS was released February 1, 2017 to correct portions of the special flood hazard area and to add the effective hydraulic model cross sections for the Lowe River within the levee seclusion box. Four revised preliminary panels were re-released to the community superseding their respective preliminary panels that were distributed on September 15, 2016.

On April 6, 2017, FEMA and the State held a Public Meeting/Workshop in the City of Valdez. A second revised preliminary FIRM/FIS was released April 10, 2017.

The 90-day appeal period Began on November 29, 2017 and ended on February 27, 2018. As no comments were received during the appeal period, the post-preliminary process production continued towards the Letter of Final Determination (LFD). On July 3, 2018, the six-month compliance period was initiated with the issuance of the Letter of Final Determination (LFD). The City of Valdez FIRMs became effective on January 3, 2019.

The table on the next page illustrates project status and includes major milestones with dates:

**Table 22: Valdez Project Status**

| Activity | Actual or Projected End Date |
|---|---|
| Valdez Discovery Interview | February 28, 2011 |
| Valdez Discovery Meeting | July 11, 2011 |
| Discovery Report | Summer 2011 |
| Coastal Analysis | Spring 2014 |
| Draft Map Release – Coastal | April 2014 |
| Flood Risk Review Meeting – Coastal | June 26, 2014 |
| Riverine Analysis | Winter 2014/Spring 2015 |
| Draft Map Release – Riverine | April 30, 2015 |
| Flood Risk Review Meeting – Riverine | August 12, 2015 |
| Preliminary DFIRM/FIS Release | September 15, 2016 |
| Consultation Coordination Officers (CCO) Meeting | November 30, 2016 |
| Revised Preliminary DFIRM/FIS Release (first) | February 1, 2017 |
| Public Meeting/Workshop | April 6, 2017 |
| Revised Preliminary DFIRM/FIS Release (second) | April 10, 2017 |
| 90-Day Appeal Period Starts | November 29, 2017 |
| 90-Day Appeal Period Ends | February 27, 2018 |
| Letter of Final Determination Issued | July 3, 2018 |
| Draft Multi-Hazard Risk Report | To Be Determined* |
| Delivery of Final Risk Report/ Risk Assessment Database | To Be Determined* |
| DFIRM/FIS Effective Date | January 3, 2019* |

**All projected dates are subject to revision as the project progresses*

## Figure 32: Map of Valdez Study Scope