

Stagebarn Canyon Alluvial Fan Study

Summerset City Commission Meeting

November 2, 2023



FEMA

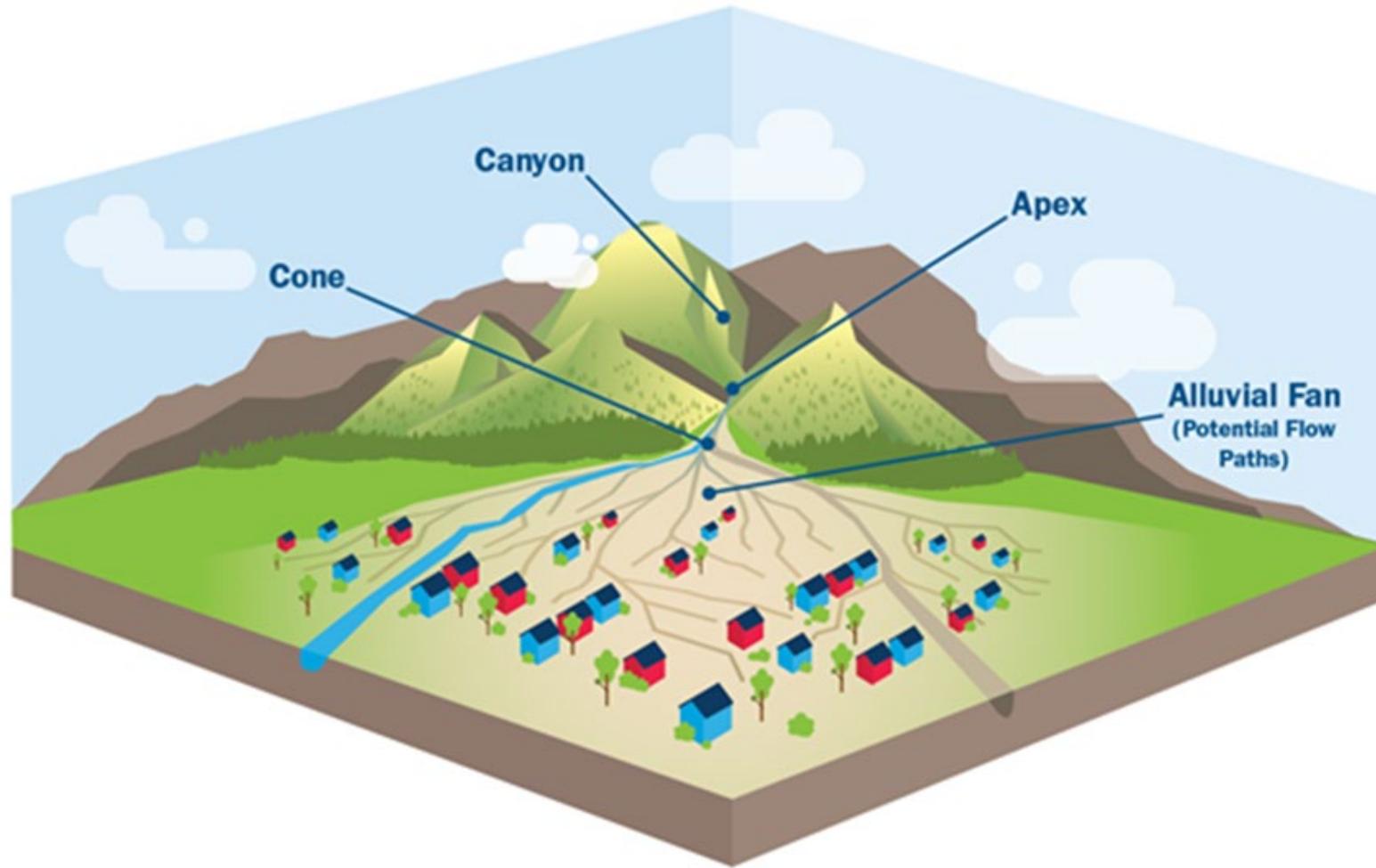
Agenda

- Why did FEMA study the Stagebarn Canyon Alluvial Fan?
- Why isn't FEMA recommending a Flood Insurance Rate Map (FIRM)?
- What does FEMA recommend?
- Questions & Answers



FEMA

What is an alluvial Fan?



FEMA

1952

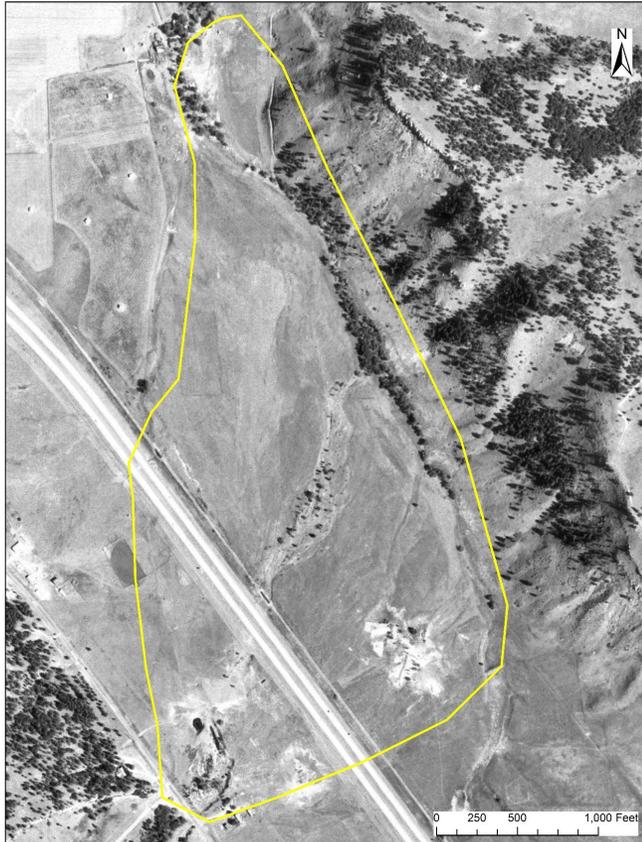


Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, AeroGRID, IGN, and the GIS User Community

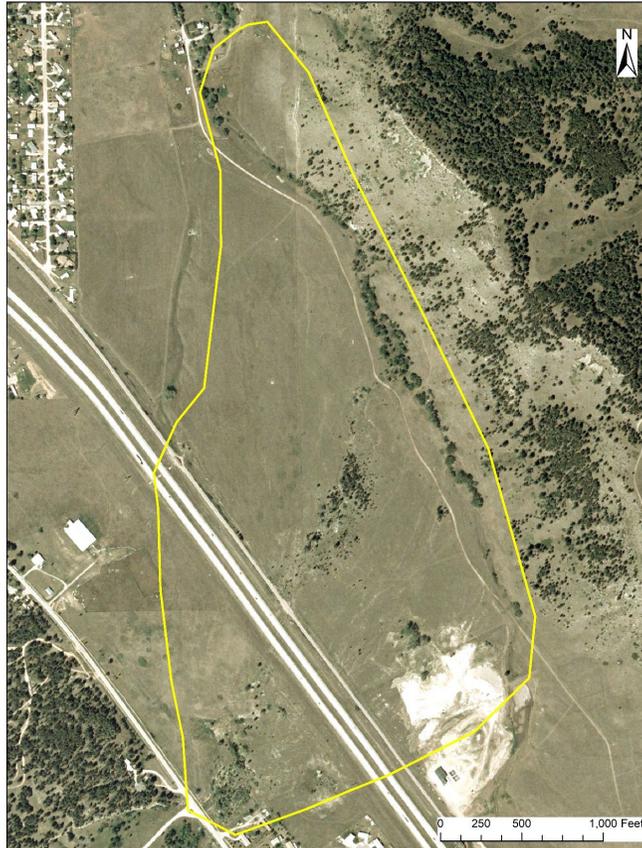


FEMA

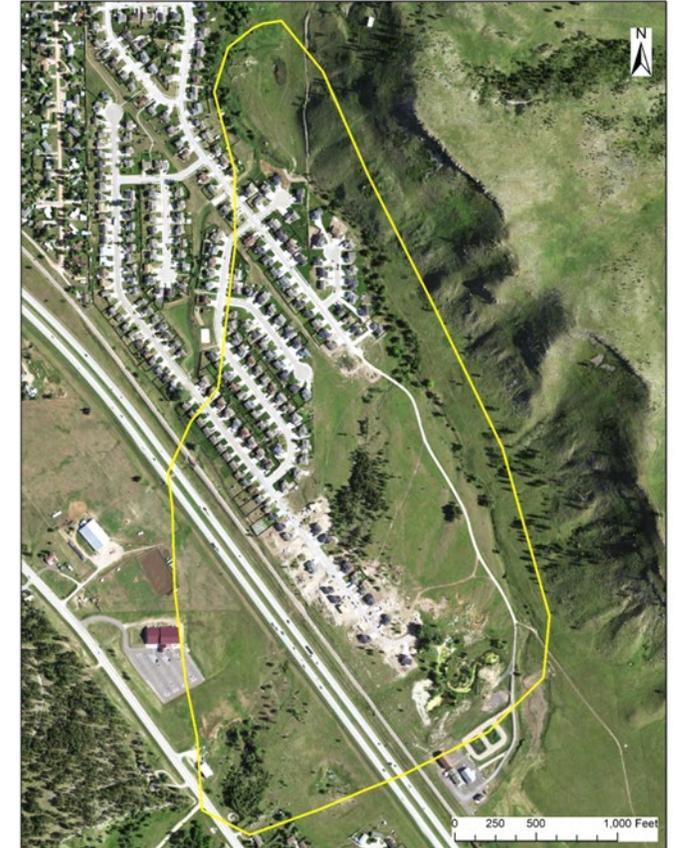
Comparing Historical Images



1971



2004

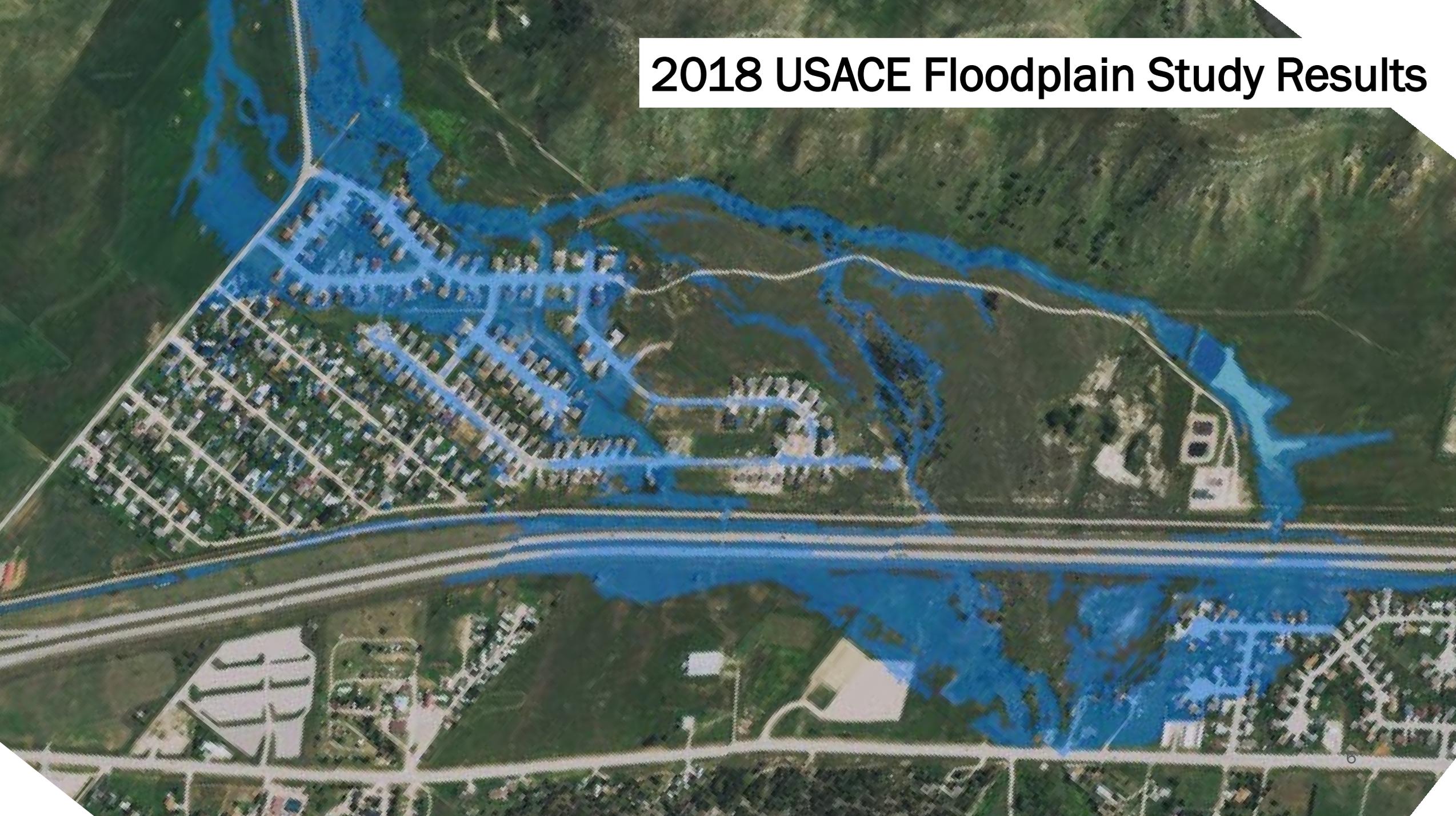


2020



FEMA

2018 USACE Floodplain Study Results



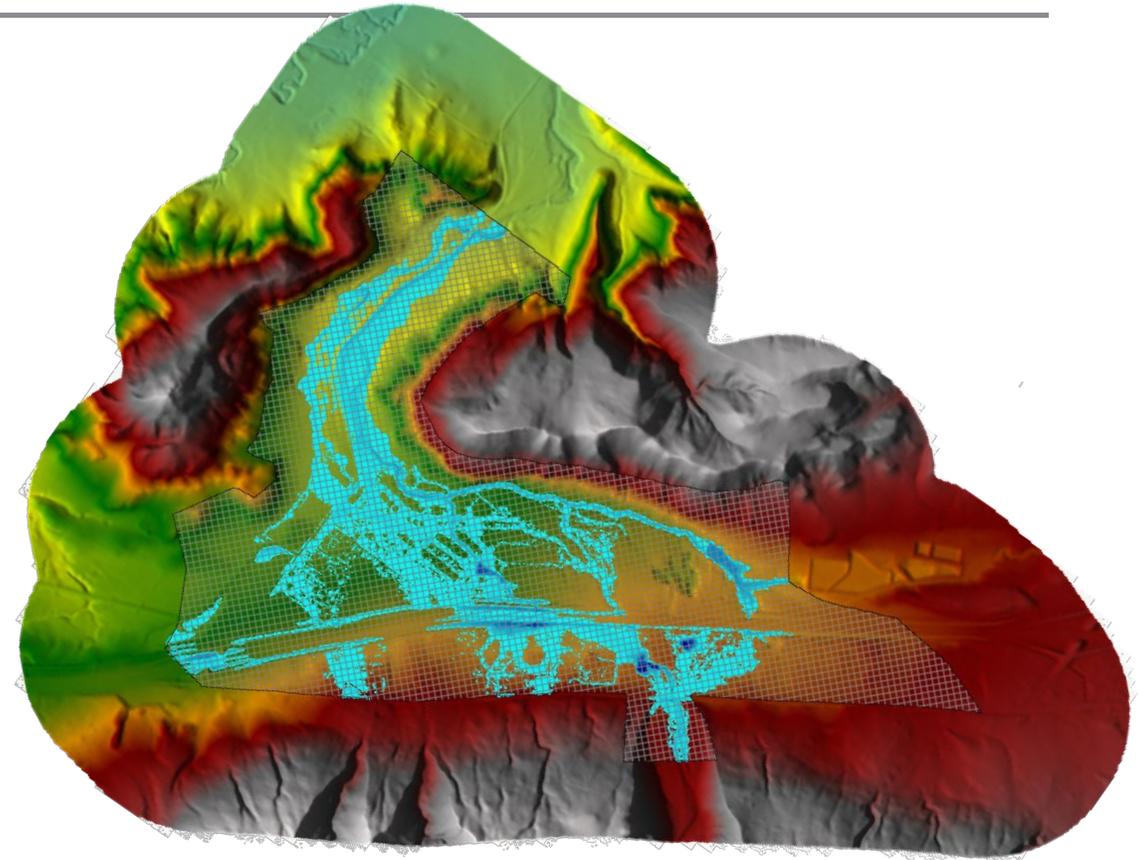
FEMA Study Process Part 1: Survey

- Surveyed major structures (culverts and bridges).
- Surveyed cross sections along streams.
- Surveyed channel banks.
- Surveyed new development not shown on aerial imagery.

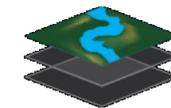


FEMA Study Process Part 2: Run 2D Flood Simulation Model

- **Hydraulics analysis** using HEC-RAS 2D version 6.3.
- **2D mesh:** 20-ft cells for developed areas, active alluvial fan area, and near streams. 50-ft cells adjacent areas.



FEMA



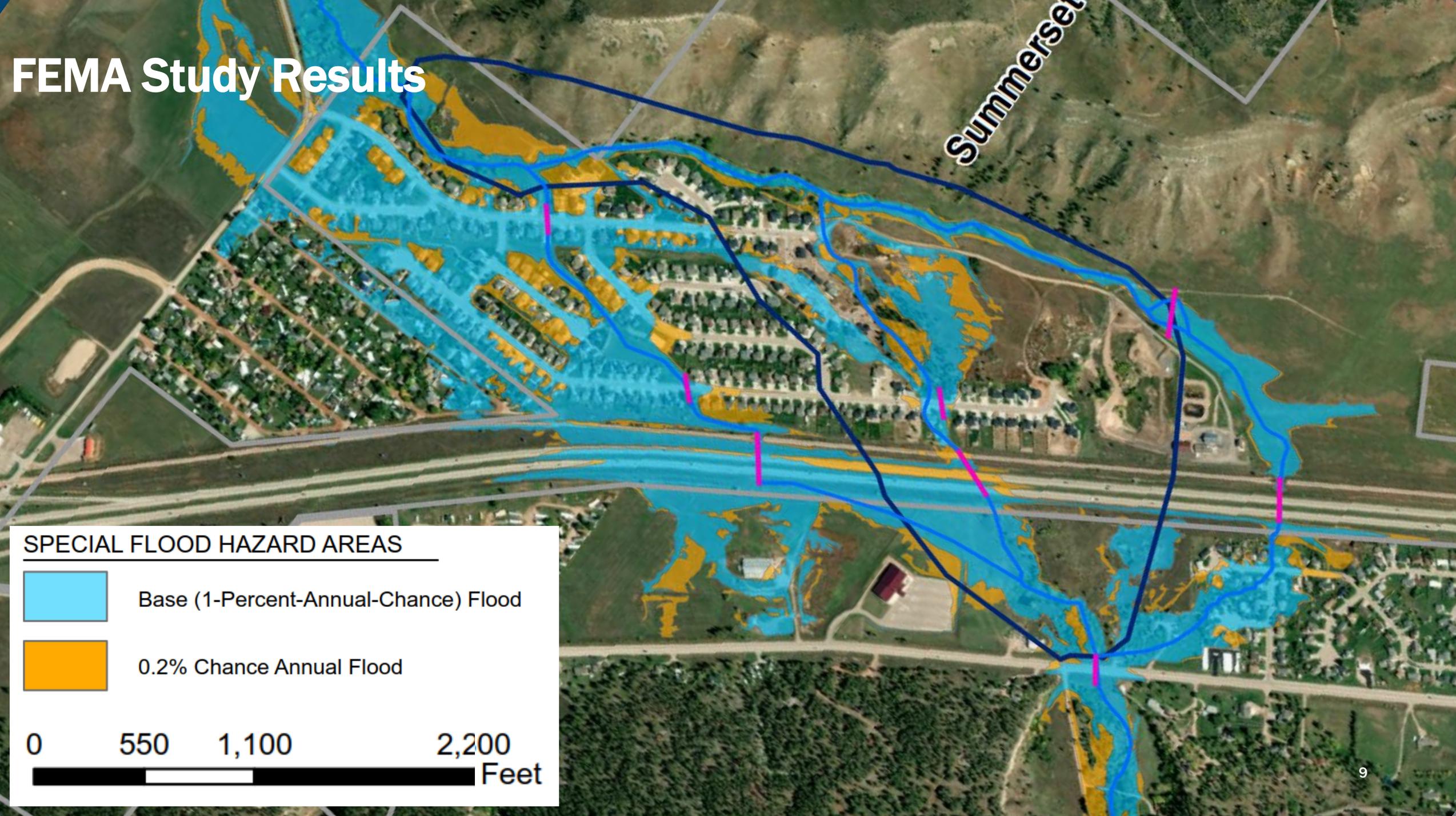
FEMA Study Results

Summerset

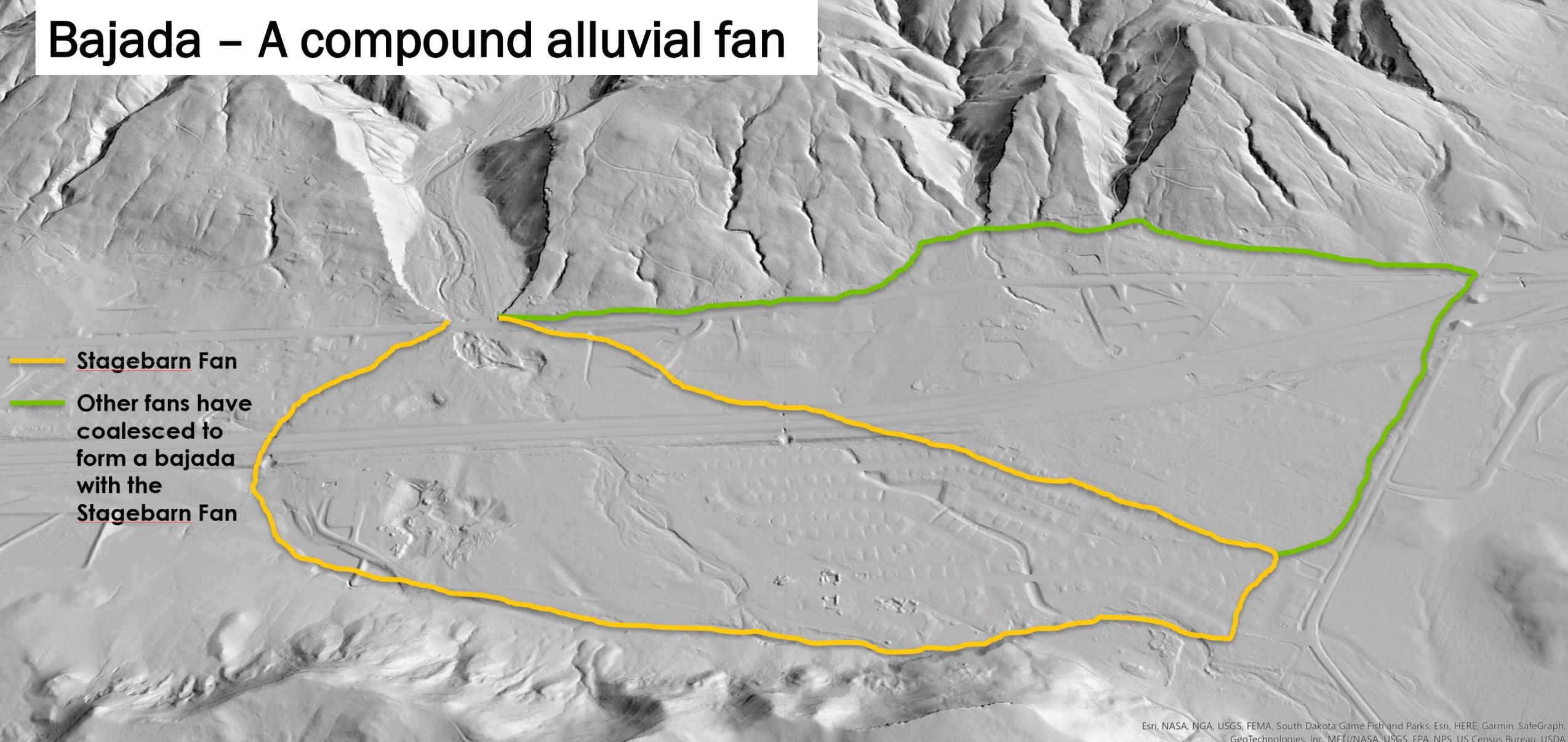
SPECIAL FLOOD HAZARD AREAS

	Base (1-Percent-Annual-Chance) Flood
	0.2% Chance Annual Flood

0 550 1,100 2,200
Feet



Bajada – A compound alluvial fan



- Stagebarn Fan
- Other fans have coalesced to form a bajada with the Stagebarn Fan

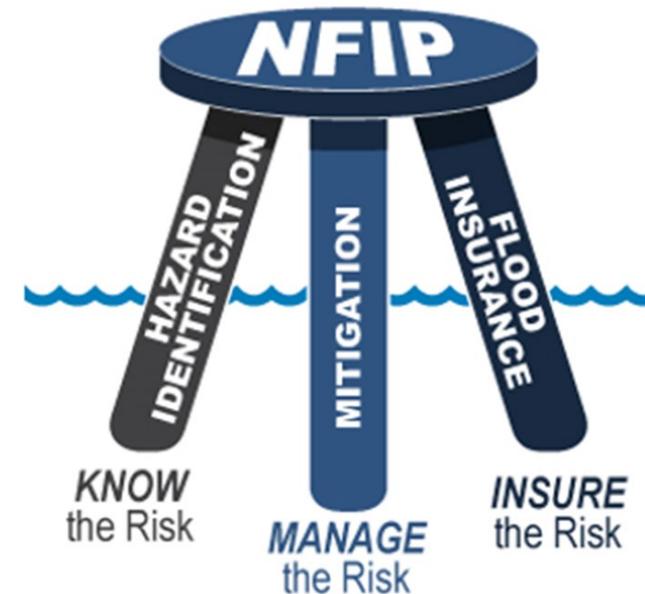
Esri, NASA, NGA, USGS, FEMA, South Dakota Game Fish and Parks, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA



FEMA

National Flood Insurance Program

- The NFIP is a voluntary program.
- Summerset joined the NFIP on September 16, 2011
- FEMA has completed a study to identify flood risk within the community.
- Community can adopt the study as Best Available Information to help reduce the impacts of flooding by implementing mitigation practices.



Flood Insurance



- As a participating community all residents are eligible to purchase NFIP flood insurance.
- Flood insurance covers \$250,000 for residential structures and \$500,000 for commercial structures.
- Adopting the Best Available Information will not impact the rate of insurance or trigger mandatory insurance purchase for federally backed loans.



FEMA

FEMA Recommendations and Next Steps

Recommendations:

- Adopt the FEMA Study as Best Available Information.
- Notify residents, landowners, and business owners of the risk.
- Encourage flood insurance.
- Pursue mitigation - Contact the SD State Hazard Mitigation Officer and the Natural Resource Conservation Service of the USDA.

Next Steps:

- FEMA to restudy the alluvial fan with better data.
- FEMA to assist with communication and outreach.



Thank you!
margaret.doherty2@fema.dhs.gov



FEMA