# Risk MAP Discovery Meeting City of Kwethluk Agenda

- Introductions
- Overview of Risk MAP
- Community Discussion
- Community Report Out
- Wrap up

# Why is the State and FEMA in your community?

#### Disasters are Expensive

Cost of disasters nationwide: \$136 billion in 3 years (2011-2013)

#### Mitigation Saves Money

- Studies have shown that \$1 spent on mitigation leads to an average savings of \$4.
- For every \$1 spent on mitigation, an average of \$3.65 of federal dollars can be redirected from disaster relief costs and tax losses avoided.

Link to Study: <u>http://www.dhses.ny.gov/oem/mitigation/documents/mitigations-</u> value-to-society.pdf



# Introductions

- Name
- Organization
- How do you contribute to the resilience of your community?
- How would you like to see resilience increased in your community?

# How Risk MAP can inform your decision making.....







#### **Potential Community Assets**

- Agriculture and Food
- Commercial Facilities
- Communications
- Emergency Services
- Energy
- Government Facilities
- Healthcare
- Information Technology
- Postal and Shipping
- Transportation Systems
- Water

to capture in the Estimate Losses	Develop GIS data to capture	Capture or Develop	Estimate Losses	Develop Problem
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	Existing Studies
Flood	USACE Studies
	New FEMA Studies

Wildfire	AK DGGS
	Forest Service

Erocion	• USACE
Elosion	• USGS

<ul> <li>Earthquake</li> <li>• AK Seismic Commission/Univ. AK Fairbanks</li> <li>• USGS</li> </ul>
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### HAZUS MH Methodology



**5. Estimate Losses/Needs** 

4. Estimate Damage

**3. Overlay Inventory** 

2. Define Flood Hazard

**1**. Define the Geographic Area for Analysis



#### Review and analyze the results of the hazard loss estimations

Identify areas with highest vulnerabilities on a map

#### **Develop list of problem statements based on findings**

 i.e. Larger flood events will impact the entire community causing road closures, impacts to public safety (access and response), limited availability of perishable commodities, and isolation.

#### Assist with the development of risk-reduction strategies

- Accurate flood maps should be prepared that delineate areas of flooding and upland areas.
- Design and construct roads that will serve to provide safe access for emergency vehicles to all parts of the community during high water events.

# Regulatory & Non-Regulatory Risk MAP Products

# **Regulatory Products**

Flood Insurance Study



#### Flood Insurance Rate Maps (FIRM)



# **Non-Regulatory Products**

- Changes Since Last Firm
- Flood Depth Grids



- HAZUS Risk Assessment
- Risk Report
- Risk Database







# **Identified Critical Facilities**

- Russian Orthodox Church
- Moravian Church
- Old school
- Kwethluk Health Clinic
- Kwethluk Community School
- City and IRA offices
- National Guard Armory
- Public Safety Building
- Washeteria (coin operated washers, dryers, and two showers)



# **Erosion Hazards**

- Erosion caused by:
  - Melting permafrost
  - Waves from storms and boats
  - Ice gouging during breakup



- The riverbank in eastern and central portion of the village lost 15 feet during a recent three year period (1998).
- Bank loss is causing a pollution problem by exposing old sewage pits

## **Proposed Erosion Projects**

• Erosion Control Project (From Economic Development Plan- 2000):

- Develop a plan to address flood control, drainage, excess surface water and erosion of river banks. Current focus is on flood control to reduce risk to school and neighboring properties.
- Extensive work is needed from the east to west edge of town



# Flood Hazards

- According to US Army Corps of Engineers, the entire community is within the 100-year floodplain of both the Kuskokwim and Kwethluk Rivers.
- The community is built on a recent floodplain from the Kuskokwim and Kwethluk rivers.
- Should the "oxbow" area along the river bank break off, the village will flood. The school and adjacent properties are all at risk.
- Most public and private buildings are built on pilings to mitigate the impacts of smaller annual floods.
  - Recommended elevation is 28.55' above sea level.
  - 4 high water marks were placed at 26.55, the elevation of 1989 flood
  - 2006 floods exceeded HWM by 1 foot
- Drainage in town is poor

Kwethluk Flood, Photos: Brigid and John



# **Proposed Flood Projects**

- Accurate floodplain maps
- Evacuation maps
- Evacuation roads providing access for emergency vehicles during high water events
- Public Education



## Severe Storm Hazards

- Buildings designed in Kwethluk with a life expectancy of 25 years should be able to withstand 66.7 mph winds and snow loads of 61psf.
- Extreme cold can halt transportation (grounding air) and cause fuel to congeal in storage tanks and supply lines
- If air transportation is grounded, Kwethluk will not receive vital supplies



# **Proposed Severe Storm Projects**

- Education and Preparation
- Advanced Storm Warning
- Special Awareness Activities
- Expand public awareness about NOAA weather radio
- Encourage weather resistant building construction materials and practices



# Earthquake Hazards

- Limited building damage assessors are available in Kwethluk to determine structural integrity following earthquake damage. Priority would have to be given to critical infrastructure.
- Kwethluk has a low probability of quakes but could be at risk for an earthquake or secondary impact of a quake in the region.
   Pr[Earthquake with M≥ 5. within 10. years & 50 km]





## **Proposed Earthquake Projects**

- Assess the structural integrity of critical facilities and infrastructure
- Identify buildings that must be able to remain operable during and following an earthquake event
- Improve the structural integrity of critical facilities and infrastructure
- Education/Awareness of non-structural retrofits



## **Fire Hazards**

- Surrounding tundra and grasslands can become dry and combustible.
- The loss of any structure is devastating to such a small community where services and housing are limited.
- A fire that closed the airport would halt the transportation of goods and services.



## **Proposed Fire Projects**

- Consider establishing building regulation, codes and requirements (fire resistant building materials and/or 3-foot nonflammable barrier)
- Conduct outreach on Fire Wise building, design, siting, etc.



### Mission Statement (From Long Range Plan 1998)

 The Organized Village of Kwethluk, with proper leadership and strong advocacy, will provide planned, self-sustaining, productive community development, enhance unity, deliver quality services, and work for the betterment and well-being of tribal members and residents.

![](_page_20_Picture_2.jpeg)

# Goals from Long Range Plan (1998)

- Economy: Develop and execute economic development, employment, and business opportunities for community residents.
- Natural Resources: Protect and preserve ancestral lands, habitat, and natural resources through tribal management
  - Develop an environmental management plan
- Infrastructure: Develop, operate, and maintain water and sewer systems, roads, community facilities, housing and other community improvements
  - Establish a public works and utilities management program which deals with flood control, drainage, excess surface water
- Services: Provide quality health, safety, and educational services that include prevention and training for the betterment and well-being of our community members
  - Develop and maintain programs which encourage good health, safety, and education for the well-being of community members.

## **Discussion Questions:**

- Are there other hazards or risks not covered?
- Are there additional ideas/projects to reduce risk?
- As Kwethluk grows economically, what is being done to ensure public health and safety?
  - How are known hazards considered (or how should they be considered) as Kwethluk thinks about its future?
- What is the status of the Hazard Mitigation Plan Update?

![](_page_23_Picture_0.jpeg)

- Draft discovery report within 6 months for your review
- FEMA will review and prioritize potential projects internally based on need and funding availability
- Notify Community of potential projects
- Draft Partnership Agreements with Communities
- Finalize Scopes of Work
- Share Scopes with impacted communities and Finalize Partnership Agreements