U.S. Army Corps of Engineers
Alaska District

ALASKA BASELINE EROSION ASSESSMENT

Erosion Information Paper - Nightmute, Alaska

Current as of October 10, 2008

Community Information

Nightmute (NITE-myoot), population 244, is in western Alaska along the Toksook River under the hill on Nelson Island, 18 miles upriver from Toksook Bay and 100 miles west of Bethel. The community is incorporated as a 2nd class city in the unorganized borough.

Description of Erosion Problem

The Toksook River bank erodes at Nightmute. Fluctuations in river levels and flow, flooding, storms, high winds, ice jams, spring break up, melting permafrost resulting in ground subsidence, high tides from the bay and boat wakes reportedly cause and contribute to erosion. Turning propellers churn up areas at the landing dock and across from the school. Bank erosion is reported along the whole length of the community affecting homes, schools, boardwalks, fuel pumps, store, storage and steam bath structures. Areas of the communities' boardwalks are about 5 feet from the river and tilting/sinking towards the river. There were a few big storms in the 1970s and 80s, but big storms reportedly have become more frequent in recent years. River erosion protection was the 3rd highest priority set by the tribal council and strategic planning participants in the *Nightmute Traditional Council Action Plan* and was included on the list of potential new strategic initiatives for 2004-2024.

The river bank below the High School between 2006-2007 has eroded about 15-20 feet and is about 50 feet or less from the kindergarten building. The fuel pump delivery coupling is about 15-20 feet away from the river bank and since 2006-2007 about 10-15 feet has eroded away. Barge landing/docking area has eroded 10-15 feet and STG Contractor has placed rocks to allow them to unload the barge. The drain pipes are exposed and sitting on the land and is only draining water during the spring melting season. The Corporation Store is sinking towards the river and is about 5 feet to the river banks.

Potential Damages

Utility poles and lines have been moved toward the mountain and are now safe. The State of Alaska Department of Transportation and Public Facilities (DOT/PF) has been monitoring the condition of the airport access road, which was damaged by erosion. DOT/PF, in cooperation with the Federal Aviation Administration, issued a public notice in October 2006 for proposed improvements to the airport including rehabilitation and stabilization of the existing airport access road. Funding for the Nightmute the airport reconstruction and access road rehabilitation was included in the Governor's 2007 supplemental budget.

A series of 55 gallon drums filled with dirt and with holes punched in them were placed along the Toksook River bank on the east end of the community to slow erosion a number of years ago.

This measure apparently helped, but most of the drums have rusted out. The tide takes mud out of the remaining drums and erodes the bank around them.

According to the *Institute for Tribal Environmental Professionals Online*, Nightmute took action to avoid an erosion-based disaster in 2003. The Toksook River has eroded close to the edge of the community's solid waste dump. During that winter the ice on the river was not thick enough for heavy equipment to cross to the dump and push the solid waste inland from the riverbank. Residents, the city, tribal governments, the school, businesses, and other community organizations moved the threatened dump 100 feet upland from the riverbank.

Residences at the west end of the community are about 15 feet from the high water mark. Rising water reaches their steps during fall storm events. The fuel tanks are in an area where high water can reach them and the sewer lines get swamped from high water during storms. High water and erosion have been getting closer to the school in the last few years. There are plans to relocate the tank farm farther up on the hill.

The City of Nightmute is now putting sand bags to the west end of the community to try to protect the houses from the erosion. The city has placed about 370 feet of sand bags to protect the houses and to slow down the erosion. The Nightmute Traditional Council IRR Transportation Department has received funding for the River Erosion Control Deign Project through High Priority Project Application for 2008. The Knik Contractor working on the airstrip and the airport road will be placing boulders along the river bank where the erosion has reached the road going towards the airport, which is scheduled for construction complete by spring/summer 2009.

Photos and Diagrams

Photos were provided by the Nightmute Traditional Council IRR Transportation and were taken during spring 2008. The attached diagram shows the linear extent of erosion.

References

CVRF, Inc. and DCRA. 2004. *Nightmute Community Map*. Prepared by Coastal Villages Region Fund Inc. in cooperation with the Division of Community and Regional Affairs.

Institute for Tribal Environmental Professionals. 2007. *Solid Waste Solutions in Rural Alaska: Minimizing the Affects of Erosion and Flooding and success stories from Nightmute and Kwigillingok*, **http://www4.nau.edu/itep/trainings/aksw_solutions_minimizing.asp**

Nightmute Traditional Council. 2004. *Nightmute Traditional Council Action Plan***.** Nightmute Traditional Council.

USACE. 1994. *Trip Report: High Water Elevation Identification*. Alaska District, U.S. Army Corps of Engineers.

USACE. 2008. *Alaska Community Erosion Survey, OMB approved number 07100001*, expires September 30, 2009 administered to Mike Joe, Nightmute city council member and general manager for Chinuruk, Inc. the village corporation on April 17, 2008.

Additional Information

This information paper, as well as those for other communities, can be accessed on the internet at www.alaskaerosion.com. For more information please contact the Corps of Engineers, project manager at (907) 753-5694 or email Alaska.Erosion.POA@usace.army.mil


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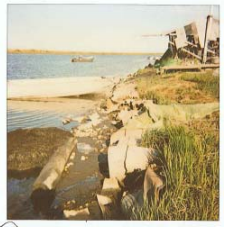
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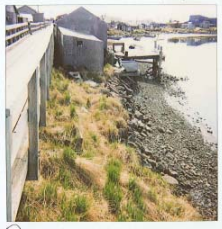
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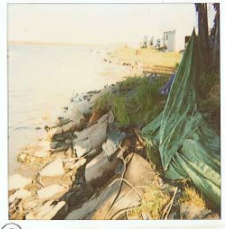
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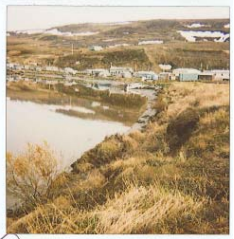
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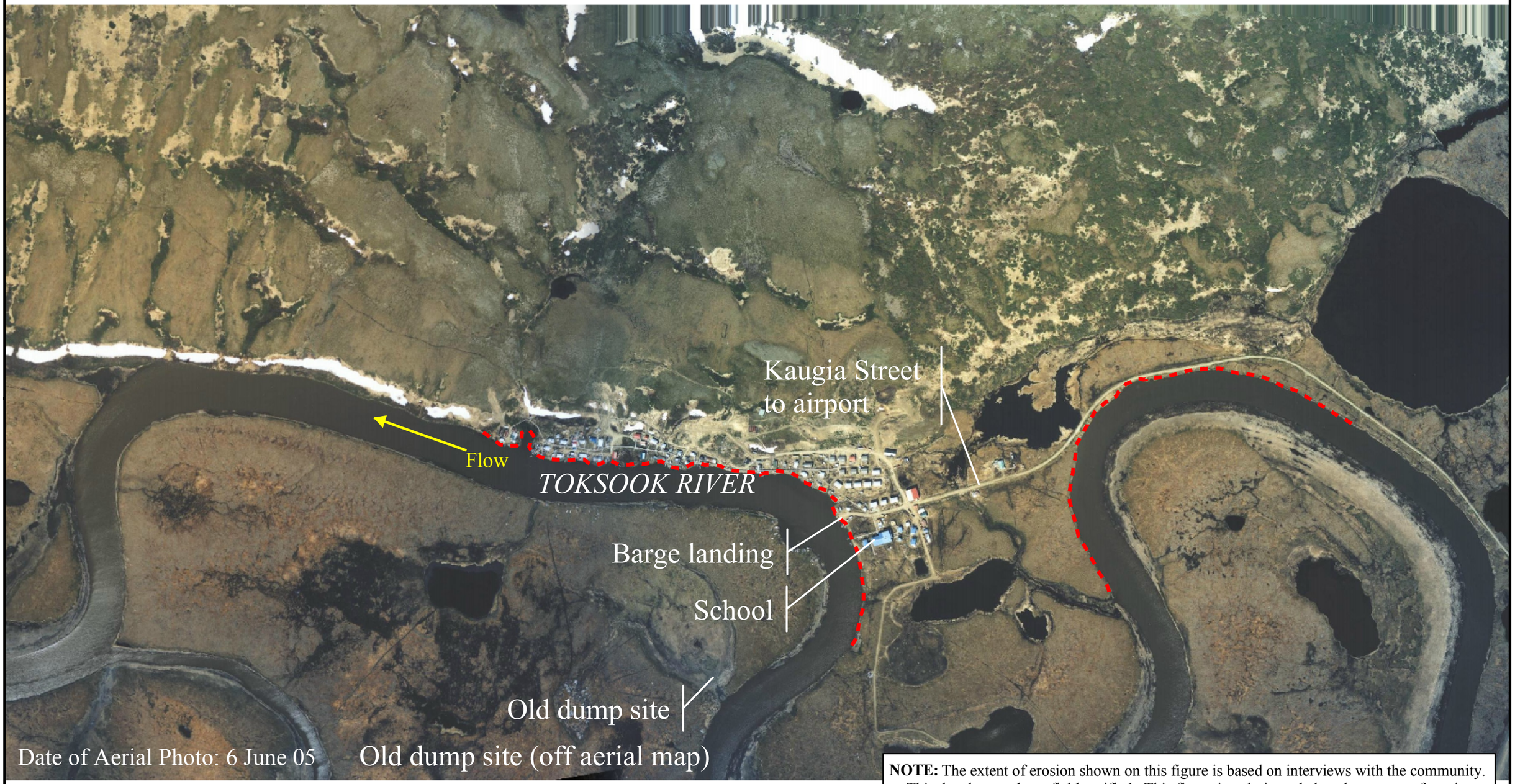

NOTE: The extent of erosion shown on this figure is based on interviews with the community. This data has not been field verified. This figure is only intended to show areas of erosion, not rates or severity of erosion

Alaska District
Corps of Engineers
Civil Works Branch

Linear Extent of Erosion

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Alaska Baseline Erosion

Nightmute, Alaska