



U.S. Army Corps
of Engineers
Alaska District

ALASKA BASELINE EROSION ASSESSMENT

Erosion Information Paper - Chiniak, Alaska

Current as of September 23, 2007

Community Information

Chiniak, an unincorporated community population 44, is 45 miles southeast of the City of Kodiak, on the easternmost point of Kodiak Island, in the Kodiak Island Borough. The community encompasses 40.5 square miles of land from the ocean, inland to the Section line between Township 29 South and Township 30 South, Seward Meridian. The Kodiak Launch Complex, a \$38 million low-Earth orbit launch facility on 27 acres, was completed in the late 1990's at Cape Narrow near Chiniak.

Description of Erosion Problem

The primary erosion problem reported in the Chiniak community area is erosion occurring along the shoreline and bluff on the waterside of Cape Chiniak Road – a State maintained road – that links Chiniak to the City of Kodiak, connecting residents to essential community services in Kodiak. The main cause of the shoreline and bluff erosion occurring along Cape Chiniak Road is identified as storm-driven wave action. In this process, storm waves attack the shore and toe of the bluff, carrying finer soil fractions offshore, and leaving rocks and boulders (talus) at the base of the bluff. Wave exposure from the North Pacific Ocean at Chiniak Point is from the west, clockwise through east directions, with an open ocean fetch ranging up to about 300 nautical miles. Also, as a result of this wave action, the side slopes of the bluff have become steepened beyond the natural angle of repose, causing mass sliding or slumping.

Wave heights in the vicinity of Kodiak Island are the largest during the winter months. Wave heights exceeding 33 feet for the months of January, February and March were reported in the 1983 *Cape Chiniak Road Erosion Study*, prepared by Tetra Tech, Inc. for the State of Alaska Department of Transportation and Public Facilities (DOT&PF). The report identified two areas of concern, one area was approximately 1500 feet long and the other was approximately 800 feet long. The 1983 *Chiniak Road Study* estimated the bluff recession rate – based on information obtained from State Highway maintenance workers – to be approximately 5 to 7 feet per year on average, with single storm events capable of eroding 15 to 20 feet of the bluff during one episode.

The community also identified two additional areas of erosion and concern. The first is across the street from the former Road's End Restaurant the roadway is continuously being shifted inland due to the road being eroded away and the second is across from the Pony lake the sea is eroding the area preventing access.

Potential Damages

Continued erosion of Cape Chiniak Road is expected to occur. Additionally, one home was identified by the Kodiak Island Borough as being at risk from loss to erosion. Most homes in the Chiniak area are located on the landward side of the Chiniak Highway.

The potential temporary or permanent loss of Cape Chiniak Road due to the continuing shore and bank erosion could have considerable adverse impacts on the social and economic well-being of Chiniak. The 1983 *Chiniak Road Study*, and the 1987 *Chiniak Comprehensive Plan* recommended relocating Cape Chiniak Road inland as a way to mitigate potential erosion damage, and ensure a link is maintained between Chiniak and Kodiak. The Borough associate planner indicated the Borough has identified a potential alternate route, if needed in the future, but constructing this route would require bridging an anadromous stream. Until a decision regarding roadway relocation becomes necessary, DOT&PF will continue to monitor and incrementally modify the road alignment, as needed to move it farther away from the coastline and erosion areas.

Photos and Diagrams

Attached photos were provided by the Kodiak Island Borough. The attached diagram depicts the approximate erosion area along a portion of the Chiniak Highway.

References

Alaska DOT/PF. 1983. *Cape Chiniak Road Erosion Study Final Report*. Prepared by Tetra Tech, Inc., for the Division of Design and Construction.

Chiniak Community Forum and the Kodiak Island Borough Community Development Department. May 1987. *Chiniak Area Comprehensive Plan*.

Kodiak Island Borough. Not dated. *Kodiak Island Borough Comprehensive Plan Update*. Currently under development, and located online at KIBCompplan.com.

USACE. 2007. *Alaska Community Erosion Survey, OMB approved number 07100001*, expires September 30, 2009 administered to Duane Dvorak, associate planner, Community Development Department, Kodiak Island Borough, on September 18, 2007.

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

PACIFIC OCEAN

Chiniak Highway

Date of Aerial Photo: 01 July 96

Kodiak Island

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



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----- Linear Extent of Erosion



Alaska Baseline Erosion
Chiniak, Alaska