



U.S. Army Corps
of Engineers
Alaska District

ALASKA BASELINE EROSION ASSESSMENT

Erosion Information Paper - McGrath, Alaska

Current as of May 21, 2008

Community Profile Summary

McGrath, population 321, is 221 miles northwest of Anchorage and 269 miles southwest of Fairbanks in Interior Alaska. It is a 2nd Class City in the unorganized borough located adjacent to the Kuskokwim River, directly south of its confluence with the Takotna River. The Kuskokwim, with a drainage area comprising approximately 11 percent of the state, is the largest river in Alaska draining entirely within the state. The old McGrath town site was originally across the river from its present location. After a major flood in 1933, residents decided to move to the south bank of the river. The OMB Community Erosion Survey was completed by the administrator of the City of McGrath.

Description of Erosion Problem

McGrath lies within the active floodplain of the Kuskokwim River. The river bank consists mainly of sandy silt with little or no gravel. According to a Corps of Engineers 1977 flood hazard study, the entire community could expect to be inundated once every 5 to 20 years. Frequent and fairly severe erosion in the community has historically resulted from several river related causes, including: (a) flooding from periodic intense rainfall; (b) ice jams, most common in May; (c) spring breakup; (d) boat traffic; and (e) migration of the entire river channel across the floodplain comprising the community.

A significant hydraulic event occurred just after breakup in 2001, the Kuskokwim River created a cut-off channel across an oxbow approximately 1 mile downstream of McGrath. The presence of this new channel resulted in a significant acceleration in the erosion rates through McGrath, and along the "McGrath oxbow" where the city is located. Prior to the cut-through channel breaking through, historical erosion rates in McGrath had typically been estimated at between 5 to 10 feet per year. In a 1999 Corps trip report, the erosion rate was reported to be as high as 10 to 20 feet near the log haul-out ramp at the upstream end of the city. The most critical erosion areas where rates seem to be highest include (1) a point from the log haul out, downstream past the area across from the Cap'n (Captain) Snow Center Community Building at the city water intake point; to the Russell Ivey property, (2) downstream end of town from the end of the runway, industrial park, past the community ballpark to the unimproved barge landing, and (3) Tonzona Avenue downstream from "B" Street to the Alaska Commercial (AC) Company corner. In the May 2005 flood event, it flooded and washed out a road connecting Cranberry Ridge and the populated area of McGrath, it did not flood at the point, McGrath had excessive erosion beginning with an immediate 5 feet which continued on, eating into a levee that protects the adjacent 1,100 feet of property and homes that is being addressed by the Natural Resources Conservation Service (NRCS) Emergency project. The event occurred when wind caused the added problem of wave

chop. The erosion rates vary sink holes form in a line in some areas to give warning where the next sections will develop fissures that will cause long and wide chunks to fall into the river. Gradual erosion is estimated by the city to be at least 6 feet minimum per year in many areas.

Potential Damages

The riverbank shoreline is used for many community activities, including boat, snow machine and ATV ramps; barge access; boat storage; fishing and hunting; processing catch; beachcombing at low water; collecting firewood; and house-log haul out. In response to the OMB Community Survey and previous erosion mitigation planning efforts, the City of McGrath has developed an inventory of structures, utilities and roads at risk in the community. The inventory of items reported to be within 100 feet of the riverbank as of August 2007, include 21 residences; more than 17 outbuildings, sheds, and workshops; 10 commercial buildings; more than 21 public structures, including the Cap'n Snow Center; water mains under roadways, water storage tanks, the state-maintained airport runway, a community park and ball park, city-owned commercial lease lots in the industrial park, and a barge landing site; the AC boat slip located across the road from the AC store; the log haul-out ramp; the community garden with water tank, storage shed and equipment, and numerous streets running north and south (A, B, C, D, E, F, and G streets), the east end of McGuire Drive, Takotna Avenue, Tonzona Avenue, and Industrial Park Drive.

The U.S. Department of Agriculture, NRCS has a 1,100 foot erosion control project planned along Takotna Avenue that is has completed final real estate easement acquisition. The project will be bided in the summer of 2008 with a completion date in 2009. Approximately 11 feet of erosion would cause the loss of Takotna Avenue which also serves as a flood control levee for minor flood events. The Corps is planning to undertake additional erosion and flooding studies in the area between the AC boat slip and the radio tower, which is subject to appropriation of funding.

Photos and Diagrams

Photos of erosion provided by community are attached. Also, attached are diagrams depicting the linear extent of erosion in the community.

References

Darbyshire & Associates. 1981. *McGrath Relocation Feasibility Study and McGrath Comprehensive Development Plan.*

MNVC. 2003. *McGrath Community Strategic Plan*, City, McGrath Native Village Council, local business and residents.

USACE. 1977. *Floodplain Information Study at McGrath.* Alaska District, U.S. Army Corps of Engineers.

USACE. 1992. *Section 205 Reconnaissance Report for Flood Damage Reduction: McGrath, AK.* Alaska District, U.S. Army Corps of Engineers.

USACE. 1999. *Trip Report of Erosion, Memorandum for Record.* Alaska District, U.S. Army Corps of Engineers.

USACE. 2007. *Alaska Community Erosion Survey*, OMB approved number 07100001, expires September 30, 2009 completed by Natalie Baumgartner, McGrath City Administrator, August 20, 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



Photo 1: City water intake. June 2007.



Photo 2: City water intake lines. June 2007.



Photo 3: City water intake building to riverbank 20 feet and Cap'n Snow Building to river bank 96 feet. June 11, 2007.



Date of Aerial Photo: 23 July 06

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



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