



U.S. Army Corps
of Engineers
Alaska District

ALASKA BASELINE EROSION ASSESSMENT

Erosion Information Paper - Seward, Alaska

Current as of July 17, 2008

Community Information

Seward (SOO-word), population 2,661, is on the eastern coast of the Kenai Peninsula on Resurrection Bay and 125 highway miles south of Anchorage. Seward is a home rule city in the Kenai Peninsula Borough.

Description of Erosion Problem

Seward has continuous erosion associated with the glacially fed, swift-moving drainages from the mountains surrounding Resurrection Bay. The drainages carry glacial debris that is deposited in the streams and added to the alluvial fans at outlets (2005 Seward/Bear Creek Flood Service Area (SBCFSA) *Flood Hazard Mitigation Plan*). Glacial streams such as Lowell Creek, Spruce Creek, Fourth of July Creek, and Japanese (local: Japp) Creek erode avalanche and other debris in their courses. Channel migrations in alluvial fan areas, channel migrations in the wider floodplain drainages such as Resurrection River, and periodically heavy rainfall associated with storm events are other contributing factors to erosion. Resurrection River overtopped the Seward Airport runway and erosion cut through a taxiway during storm-induced flood events in 1986, 1995, and 2006.

Residents in Lowell Point were isolated from Seward when an approximate 18-inch rainfall in 3 days during August 1986 eroded debris in Spruce Creek, washing out the bridge and a large portion of Lowell Point Road. A torrent of debris was sent down Spruce Creek when a 15-inch rainfall, combined with one of the highest tides of the year, resulted eroded Lowell Point Road and brought Spruce Creek closer to the sewage lagoon in October 2006. The Lowell Creek diversion tunnel outflow dumped a 25-foot high pile of debris and gravel on the Lowell Creek Bridge at Lowell Point Road, damaging the bridge and backing water into surrounding businesses and streets.

The alluvial fan area of Japanese Creek has seen increasing development in recent years and supports a number of schools, a military recreation center, several businesses, many private residences, the maximum-security Alaska Spring Creek Prison, several large commercial developments such as the Seward Marine Industrial Center Deep-Water Port Facility, and a future long term care center for the elderly. The city has diverted the river and constructed a levee along each side of the creek channel to protect these facilities. An interim Corps *Flood Damage Reduction Reconnaissance Report* stated the levees had reduced the active surface of the fan by 70 percent. The 2006 flood eroded the toe of a levee that had been constructed by the city along part of the channel to protect development; however damages have since been repaired.

Potential Damages

Lowell Point Road, the only road connection between Seward and Lowell Point, continues to be at risk from shoreline erosion and periodic erosion events associated with Spruce Creek and Lowell Creek. Sewer lines that follow the road and connect to the sewage lagoon south of the Spruce Creek Bridge are at risk if the eroding Spruce Creek channel moves closer. The levee at Japanese Creek and the airport runway are at risk during storm and flood events occur.

Photos and Diagrams

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

References

- SBCFSA. 2007.** *Seward Bear Creek Flood Service Area Flood Hazard Mitigation Plan, A service area of the Kenai Peninsula Borough.* Originally published July 2005.
- USACE. (Date unknown).** *Flood Damage Reduction Revised Reconnaissance Report Seward, Alaska (Interim).* Alaska District, U.S. Army Corps of Engineers.
- USACE. 1990.** *Rehabilitation Letter Report, Lowell Creek Tunnel, Seward, Alaska.* Alaska District, U.S. Army Corps of Engineers.
- USACE. 1994.** *Seward Area Rivers: Flood Damage Prevention Interim Reconnaissance Report.* Alaska District, U.S. Army Corps of Engineers.
- USACE. 2007.** *Alaska Community Erosion Survey, OMB approved number 07100001,* expires September 30, 2009 administered to William Casey, Seward public works director and Phillip Oates, city manager, and meeting with Seward Bear Creek Flood Service Area board on October 1, 2007.
- USGS. 2004.** *Floods on the Kenai Peninsula, Alaska, October and November 2002.* U.S. Geological Survey Fact Sheet.

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: Lowell Creek tunnel outfall being cleared after the October 2006 flood buried the bridge blocking Lowell Point Road, October 2006.

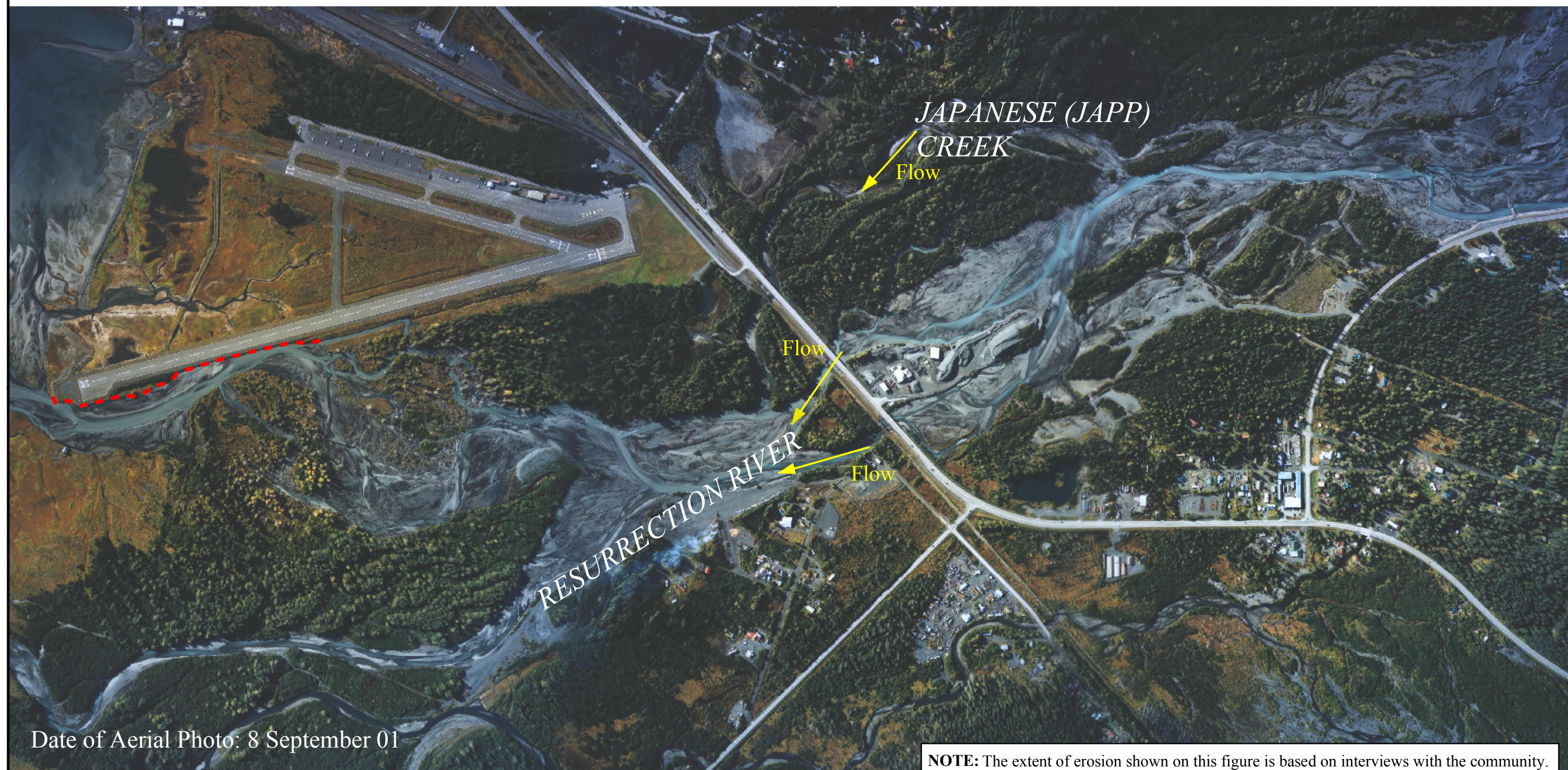


Photo 2: Alaska Sea Life Center outbuilding debris damage from Lowell Tunnel flooding, October 2006.

Japanese Creek levee-erosion caused damage to the toe of the levee during the 2006 flood, bridge was washed out



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
Part 2



Alaska Baseline Erosion
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--- Linear Extent of Erosion
Part 3



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