Community Information
Kotzebue (KAWT-zuh-byoo), population 3,104, is on the Baldwin Peninsula on Kotzebue Sound. It is 26 miles above the Arctic Circle and 549 miles northwest of Anchorage. The community is incorporated as a 2nd class city in the Northwest Arctic Borough. The beach and shoreline are used for boating, snow machining, ATV access, barge access, boat storage, fishing, hunting, processing catch, beachcombing, cultural and social events, and driftwood collecting.

Description of Erosion Problem
Kotzebue is on a 3-mile-long spit ranging in width from 1,100 to 3,600 feet. Storm surges, storm-driven waves, and ice action contribute to periodic beach erosion. These contributors were also described in the 1984 Task Force on Erosion Control Report, prepared by the Alaska Department of Transportation and Public Facilities (DOT&PF). The bank along Shore Avenue, from Lake Street to Crowley Marine Dock, is being eroded. This area abuts Kotzebue Sound and is approximately 4,600 feet long and 4 to 10 feet high. The erosion rate is estimated to be 1 to 3 feet per year.

Areas of Kotzebue flood about every 8 to 10 years. The worst erosion and flooding event was during a 1990 storm when waters were 6 to 7 feet above normal high water, flooding 4 residences, the airport, lift stations, and sewer mains. Storms in October of 2002 and the fall of 2004 caused damaging storm surges.

Potential Damages
An October 2002 storm surge resulted in major damage to Shore Avenue. This damage was repaired in 2004. A fall 2004 storm resulted in damage that was repaired in 2006. The total costs of these repairs were reported to be just under $500,000. The DOT&PF has scheduled a project for 2009 to rehabilitate and provide erosion protection for Shore Avenue from Lake Street, extending approximately 4,600 feet to the end of the road at Crowley Dock. DOT&PF, reportedly, has about $6.4 million earmarked for widening the existing Shore Avenue right-of-way by 30-50 feet, paving with new sidewalks, a pathway, parallel parking, an open space on the seaward side, installation of a riprap revetment, and a sheet pile wall for erosion protection along a majority of the project length.

Placement of gravel-filled 55-gallon steel barrels to form a groin along the beach, galvanized wire gabion baskets filled with rock and gravel, and various types of plastic or fabric bags filled with sand and gravel were installed in the 1980s by the community as erosion protection measures along the beachfront. These protective measures reportedly proved somewhat successful, but
short-lived. Most of the 55 gallon drums rusted out and the gravel fill spilled out by 1984. The galvanized wire gabion baskets eventually collapsed and were destroyed by waves.

Structures and facilities threatened by erosion include residences, outbuildings, sheds, water tanks and lines, fuel tanks, food storage structures, a retail store, Shore Avenue, the boat launch, boat storage and repair structures, utility poles, sites of significant cultural and archeological value, schools, clinics, churches, other public buildings, the airport runway, and airport facilities.

**Photos and Diagrams**
Photos of erosion provided by the City of Kotzebue are attached. Also, attached is a diagram depicting linear extent of erosion.

**References**

**Additional Information**
This information paper, as well as those for other communities, can be accessed on the internet at [www.alaskaerosion.com](http://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](mailto:Alaska.Erosion.POA@usace.army.mil)
Photo 1: Shore Drive looking toward Crowley dock, 2007.

Photo 2: Kotzebue lagoon and Swan Lake merge as a large low pressure weather system over the Seward Peninsula and high tide raised water levels higher than usual on Sept. 23, 2005.

Photo 3: Dozing ice off of Shore Drive, May 2002.

Photo 4: Ice piles up near Nullagvik Hotel, May 2002.
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.

NOTE: Date of Aerial Photo: 9 October 98

Approximate location of Shore Avenue erosion protection planned.