

Agency: Commerce, Community and Economic Development**Grants to Named Recipients (AS 37.05.316)****Grant Recipient: Cook Inlet Regional Citizens Advisory Council****Federal Tax ID: 92-0135368****Project Title:****Project Type:** Information Systems and Technology

Cook Inlet Regional Citizens Advisory Council - Ice Forecasting Network

State Funding Requested: \$70,000
One-Time Need**House District:** Kenai Areawide (33-35)**Brief Project Description:**

Expand and maintain the existing Web-based video network throughout central and upper Cook Inlet for use by the National Oceanic and Atmospheric Administration's Ice Forecaster, U.S. Coast Guard, and Marine Emergency Responders.

Funding Plan:

Total Project Cost:	\$250,000
Funding Already Secured:	(\$177,049)
FY2013 State Funding Request:	(\$70,000)
Project Deficit:	\$2,951

*Funding Details:**2006/2007 - \$31,449 - Local funding through Kenai Peninsula Borough**2007/2008 - \$45,500 - Cook Inlet RCAC annual budget.**2009 - \$13,000 - Cook Inlet RCAC annual budget**2010 - \$4,500 - Cook Inlet RCAC annual budget**2011 - \$60,000 - Capital Improvement Grant**2012 - \$22,600 - Cook Inlet RCAC annual budget***Detailed Project Description and Justification:**

Cook Inlet RCAC plans on installing additional video cameras and expanding the ice-observing network to provide comprehensive visual coverage of critical areas, to monitor characteristics of ice formation, make-up and movement as it progresses through the winter months. All of this information culminates in a timely and accurate ice advisory, marking the way to a safer, more efficient marine transportation route to Alaska's largest port.

What this means in terms of winter navigation to Cook Inlet marine operations is very simple: accurate, reliable ice advisories and ice analysis for Cook Inlet mariners. Accurate ice forecasts provide much-needed information to factor into the equation of vessel arrivals and departures, dock availability and loading times. Port managers rely on vessels moving through the port quickly, efficiently, and on schedule to move valuable cargoes through their terminals. Without an accurate ice forecast, port activity suffers. Vessels voyaging North through the Inlet could find themselves forcing ice, a condition that according to U.S. Coast Guard "Winter Guidelines" would require them to turn back and navigate to safer waters until more favorable conditions are present. Because Coast Guard winter guidelines require a voyage plan for barge movement, tug

operators moving barges need a reliable ice forecast to aid them in planning arrivals and departures for a safe voyage through the ice. In order to conduct an effective oil spill response, constant updates on weather and sea conditions are required.

Cook Inlet is arguably one of the most dynamic bodies of water in the world. Some of the challenges for safe navigation include extreme tides, swift currents, and winter ice conditions. All of these conditions were a factor during the grounding of the T/V Seabulk Pride. In February 2006, heavy ice ripped the 574-foot tanker from its mooring while it loaded cargo from the Kenai Pipeline dock. In only eight minutes the tank vessel was pushed north approximately one half mile, leaving it high and dry with its propeller and bow out of the water at low tide. Then in January 2009, the Offshore Supply Vessel Monarch was pushed into the offshore platform Granite Point, resulting in the vessel sinking. The ensuing emergency response and salvage efforts were severely hampered by heavy ice conditions moving through the area. The events of the past and recent less serious events are important reminders that we must continue to improve spill prevention safeguards in Cook Inlet.

One significant gap in information noted during the 2006 and 2009 incidents was real-time information about Cook Inlet ice conditions...critical information that would have allowed responders to locate open water leads to move freely through the ice to respond to the stricken vessels. High-resolution video camera installation began in 2007 at a central Cook Inlet facility. Currently, five locations host six cameras - two in upper Cook Inlet, two in central Cook Inlet, and two on an offshore platform. This video network has enhanced the ability of the National Oceanic and Atmospheric Administration (NOAA) Ice Forecaster to analyze ice conditions by comparing real-time streaming video images against satellite radar images to produce a more accurate Ice Forecast for Cook Inlet. The live video feed allows the Ice Forecaster to see some of central and upper Cook Inlet on one video monitor, to identify and track an event or multiple events from one location to the next, and record any event for future study.

Now that the system is operational, additional cameras are needed to expand that view. Several sites of particular interest to the NOAA Ice Forecaster are located along the west side of Cook Inlet and on Fire Island. These areas are significant because they allow observation of not only the ice movements, but also provide much needed weather data for each area. One site selected for possible camera placement is the Osprey offshore crude oil production platform located in Redoubt Bay. Selected for its strategic position south of the West Forelands it gives the Ice Forecaster a much needed view of the west side of the Inlet south of the "Forelands". Other sites are being evaluated based on location and cost of data transmission.

The "brain" of the network is a stand-alone computer server utilizing an image-enhancing software package. Video archiving is facilitated by a portable one terabyte hard drive that will be replaced when it is filled with archived data. The "eyes" of the network will be a mix of high resolution, pan, tilt, zoom, cameras, and fixed cameras. The onshore system is linked together with a high speed broadband network circuit (the source of recurring operational costs), while the offshore cameras are linked to the main server via a wireless Ethernet bridge. The system must be updated as requirements expand and as technology allows. In the past, the NOAA ice advisory and ice analysis for Cook Inlet consisted of a prediction of ice position and conditions based on an interpretation of a satellite radar image, weather forecasts and occasional field observations. However, due to operational limitations, satellite radar images were not always available on a daily basis. Today the ice observer's network consists of the six high-resolution digital cameras at fixed stations (onshore and offshore facilities) providing live streaming video images of ice movement and makeup, and field observers (offshore supply vessels and facility operators) that provide occasional (weekly) written and still photographic observations to the NOAA Ice Forecaster. By using various operators throughout the Inlet, a North to South network provides a wide area of coverage. By blending high-tech features into the network, a detailed picture can be assembled. The high-tech features consist of state-of-the-art digital video recording cameras and operating system combined with satellite radar images (as available) to provide the

ability to track tidal progression and wind-driven movement of ice throughout central and upper Cook Inlet.

The video network user group consists of NOAA, the U.S. Coast Guard, facility operators, oil spill responders, and scientific users. The primary beneficiaries are the hundreds of mariners navigating Cook Inlet to Alaska's largest port each winter. The Ice Forecaster uses the real-time video feed to reconcile satellite radar imagery and on-scene observations to produce a very accurate ice analysis and forecast. U.S. Coast Guard waterway management personnel may utilize the video network to confirm conditions prior to the issuance of a "local notice to mariner" broadcast, or the implementation of winter guidelines. Spill responders may use the video feed to locate and track oil in ice or spill movement during summer months. Scientific groups may use the video archive to study ice dynamics. The Alaska Ocean Observing System (AOOS) and other scientists conducting Cook Inlet Beluga whale studies are examples of other groups that may benefit from the data collected.

Project Timeline:

Ongoing system design and negotiations for additional camera locations. Expansion of system area of observation will continue until comprehensive visual coverage of critical areas is achieved. Recurring costs for system operation continue throughout the life of the project. Additional cameras and wireless data transmission equipment FY2012 and may extend into FY 2013.

Entity Responsible for the Ongoing Operation and Maintenance of this Project:

Cook Inlet Regional Citizens Advisory Council

Grant Recipient Contact Information:

Name: Michael Munger
Title: Executive Director
Address: 8195 Kenai Spur Hwy.
Kenai, Alaska 99611
Phone Number: (907)283-7222
Email: MichaelMunger@circac.org

Has this project been through a public review process at the local level and is it a community priority? ☒ Yes ☐ No